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DEPARTMENT OF AGRICULTURE,
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FIELD EXPERIMENTS WITH SUGAR CANE, XVIII.

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XV.

REPORT OF THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1949.

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FIELD EXPERIMENTS WITH SUGAR CANE, XVIII.

BY

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AND

C. CAMERON, *Field Manager*.

INTRODUCTION.

In this paper the results of 61 Field Experiments with Sugar Cane reaped in 1949 are presented and discussed. The trials are grouped as follows :

Variety	44
Manurial	13
Cultivation	1
Trials with Organo-Mercurial Compounds	3

The weather during 1949 was remarkable for the exceptionally heavy rainfall which occurred in December. In that month the total precipitation as measured at Sophia was 37.75 inches an amount which has only once been exceeded in any month for the past 60 years and which was 23 inches above the average. This was the climax of a year of abnormally heavy and persistent rains in which both the Spring and the Autumn dry season were ill-defined and of short duration. The total rainfall for 1949 at the Sugar Experiment Station was 133.34 inches, over 35 inches more than the average figure for the last 29 years.

TABLE I.—**Comparison of January—December Rainfall at Sophia Sugar Experiment Station for 1949 with the Average for 1921–1949.**

Month.	Actual Rainfall, 1949. Inches.	Average Rainfall, 1921—1949. Inches.	Excess or Deficit, Inches.
January 1949	13.18	8.63	4.55
February „	5.27	4.66	0.61
March „	10.09	4.73	5.36
April „	7.93	6.43	1.50
May „	12.31	12.41	-0.10
June „	11.84	14.58	-2.74
July „	9.76	11.68	-1.92
August „	10.49	7.54	2.95
September „	5.43	2.84	2.59
October „	4.78	3.87	0.91
November „	4.51	5.81	-1.30
December „	37.75	14.75	23.00
Total	133.34	97.93	35.41

As a result of the abnormal conditions which have been described, reaping on many estates fell behind schedule with the result that the reaping of some experiments which should have been taken off in 1949 was postponed until 1950. Yields throughout the year were very fair although at Sophia the Spring Crop was disappointing. In the Autumn, however, excellent results were obtained from the majority of trials.

VARIETY TRIALS.

The results of the 1949 series of variety trials are presented and discussed under the following sub-heads, *viz* :—

(a) Variety Sorting trials ;

(b) Plant cane variety trials ;

(c) First ratoon variety trials ;

(d) Second ratoon variety trials ;

(e) Variety Performance Summary ;

(f) General Summary and Recommendations.

SUB-SECTION A.—VARIETY SORTING TRIALS.

Two Variety Sorting Trials were reaped in 1949. One of these — 13 W. Sophia—had been reaped as plants in 1948 and the results presented and discussed in Bulletin No. 17. It was cut as first ratoons in 1949. The other Sorting Trial—15 W. Sophia—was a 16 x 4 Lattice design incorporating 15 of the B.44' series with B.34104 as a standard. The results are tabulated on next page, both trials being analysed statistically as simple randomized blocks.

TABLE II.—**Results of a First Ratoon "Variety Sorting" Trial on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.
	Sophia, Field 13 W. Reaped 31.x.49 at 12.00 months.							
MEANS OF 4 PLOTS:	B. 4373	50.29	13.31	83.4	6.70	121.82	D. 54/43	13.02
	D. 54/43	49.30	12.85	83.9	6.34	115.27	B. 4373	12.70
	B. 43214	48.76	12.94	86.8	6.31	114.73	B. 43214	12.62
	B. 43253	39.70	14.94	87.8	5.93	107.82	B. 43253	12.55
	D. 48/43	45.97	12.63	84.9	5.80	105.45	B. 4110	11.85
	B. 4327	39.70	14.50	87.0	5.76	104.73	D. 48/43	11.78
	D. 14/34	37.92	14.92	90.0	5.66	102.91	B. 4327	11.33
	B. 4306	43.55	12.92	85.1	5.63	102.36	B. 43255	11.04
	B. 4381	46.84	12.01	83.3	5.63	102.36	B. 43391	10.89
	D. 7/43	46.47	12.06	77.8	5.60	101.82	D. 14/34	10.80
	B. 4110	43.63	12.51	85.5	5.46	99.27	B. 34104	10.77
	B. 43391	39.95	13.51	86.2	5.39	98.00	B. 4306	10.74
	B. 34104	40.22	12.77	87.7	5.14	93.45	B. 4381	10.65
	B. 43255	41.74	12.16	85.3	5.07	92.18	B. 43388	10.63
	B. 43337	41.11	12.11	83.9	4.98	90.55	B. 43337	10.38
	B. 4145	35.84	12.92	86.2	4.63	84.18	D. 7/43	10.37
	D. 38/43	36.93	12.31	80.0	4.54	82.55	D. 38/43	10.34
	B. 43388	41.46	10.88	83.5	4.51	82.00	B. 4145	9.28
	Mean:				5.50	100.00		
	Significant Difference, 20:1:				0.82	14.91		

TABLE II. (Contd.).—**Results of a Plant Cane "Variety Sorting" Trial on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
	Sophia, Field 15 W. "A." Reaped 21.x.49 at 13.00 months.					
MEANS OF 4 PLOTS:	B. 44244	56.21	13.47	86.8	7.57	127.66
	B. 44341	49.69	15.09	88.7	7.50	126.48
	B. 44111	45.25	14.66	91.3	6.63	111.80
	B. 4466	48.94	13.16	88.5	6.44	108.60
	B. 44182	44.97	13.78	90.8	6.20	104.55
	B. 44254	47.71	12.50	86.2	5.96	100.51
	B. 4491	42.68	13.73	88.9	5.86	98.82
	B. 44278	42.58	13.74	89.7	5.85	98.65
	B. 44269	44.31	13.07	88.7	5.79	97.64
	B. 44279	42.85	13.01	91.8	5.57	93.93
	B. 4411	37.55	14.60	89.4	5.48	92.41
	B. 4409	45.61	12.00	86.8	5.47	92.24
	B. 34104	39.00	13.77	95.9	5.37	90.56
	B. 4410	42.62	12.46	85.9	5.31	89.54
	B. 4425	42.66	12.21	87.5	5.21	87.86
	B. 4485	38.68	12.01	88.3	4.64	78.25
	Mean:				5.93	100.00
	Significant Difference, 20:1:				0.97	16.36

SUB-SECTION B.—PLANT CANE VARIETY TRIALS.

Twenty-four plant cane variety trials were reaped during 1949. They are classified according to soil type and locality as follows:—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	1—16	16
Berbice Frontland Clay	17—18	2
Riverside Clay	19—21	3
Pegassy Clay	22—24	3

Results of these trials are shown in Table III.

TABLE III.—**Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre. Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Trial No.
	Sophia, Field 2 E. "A." Reaped 23.iv.49 at 13.25 months.						
MEANS OF 4 PLOTS:	D. 62/43	52.75	14.62	87.2	7.71	116.47	1
	B. 41227	52.70	13.49	87.7	7.11	107.40	
	B. 34104	52.02	13.32	88.2	6.93	104.68	
	D. 51/43	49.92	13.86	86.8	6.92	104.53	
	D. 28/43	44.88	15.19	89.6	6.82	103.02	
	D. 55/43	45.10	14.86	88.5	6.74	101.81	
	D. 4/43	48.41	13.65	86.8	6.61	99.85	
	D. 7/43	45.13	13.28	85.8	5.99	90.48	
	D. 41/43	32.49	14.75	87.9	4.79	72.36	
	Mean:				6.62	100.00	
	Significant Difference, 20: 1:				—	—	
	Sophia, Field 8 E. "A." Reaped 4.iv.49 at 14.00 months.						
MEANS OF 4 PLOTS:	B. 34104	41.50	14.57	89.3	6.04	118.43	2
	D. 27/44	38.05	15.19	90.5	5.78	113.33	
	D. 26/44	42.14	12.87	89.1	5.42	106.27	
	D. 14/44	37.17	14.48	89.6	5.38	105.49	
	D. 20/44	38.29	12.65	87.5	4.84	94.90	
	D. 25/44	35.28	13.47	87.6	4.75	93.14	
	D. 21/44	33.80	13.38	86.9	4.52	88.63	
	D. 17/44	32.63	12.39	88.3	4.04	79.22	
	Mean:				5.10	100.00	
	Significant Difference, 20: 1:				0.91	17.84	
	Sophia, Field 8 E. "B." Reaped 27.iii.49 at 13.75 months.						
MEANS OF 4 PLOTS:	D. 7/44	40.90	15.22	88.6	6.24	114.50	3
	D. 1/44	40.49	14.63	86.2	5.92	108.62	
	D. 6/44	40.08	14.64	84.9	5.87	107.71	
	B. 34104	40.37	14.22	88.0	5.74	105.32	
	D. 13/44	40.58	14.00	83.2	5.68	104.22	
	D. 2/44	39.98	13.95	84.6	5.58	102.39	
	D. 3/44	36.06	14.89	86.9	5.37	98.53	
	D. 10/44	34.84	14.09	86.5	4.91	90.09	
	D. 9/44	39.45	12.42	83.1	4.90	89.91	
	D. 12/44	31.38	13.64	86.4	4.28	78.53	
	Mean:				5.45	100.00	
	Significant Difference, 20: 1:				—	—	

TABLE III. (Contd.).—**Results of Plant Cane Variety Trials on Demerara Frontland Clay**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Trial No.
	Sophia, Field 1 W. Reaped 6.ix.49 at 13.50 months.						
MEANS OF 4 PLOTS:	D. 49/41	44.86	14.51	88.9	6.51	108.50	4
	D. 130/41	44.73	14.03	88.7	6.28	104.67	
	B. 34104	41.31	12.58	86.6	5.20	86.67	
	Mean:				6.00	100.00	
	Significant Difference, 20: 1:						
	Sophia, Field 2 W. "A." Reaped 6.x.49 at 12.00 months.						
MEANS OF 4 PLOTS:	D. 18/43	42.71	14.65	88.0	6.26	117.45	5
	D. 158/41	43.00	14.27	87.8	6.14	115.20	
	D. 35/43	37.12	14.96	88.5	5.55	104.13	
	D. 17/43	36.17	14.51	88.0	5.25	98.50	
	D. 4/43	34.97	14.99	89.2	5.24	98.31	
	B. 34104	35.73	14.03	91.1	5.01	94.00	
	D. 6/43	34.89	13.82	88.3	4.82	90.43	
	D. 21/43	33.25	13.07	85.5	4.34	81.43	
	Mean:				5.33	100.00	
	Significant Difference, 20: 1:				—	—	
	Sophia, Field 2 W. "B." Reaped 5.x.49 at 12.00 months.						
MEANS OF 4 PLOTS:	D. 62/43	38.90	14.67	89.2	5.71	122.27	6
	D. 55/43	36.68	13.07	86.7	4.79	102.57	
	D. 51/43	36.70	12.94	86.8	4.75	101.71	
	B. 34104	27.49	15.00	90.2	4.12	88.22	
	D. 23/41	31.52	12.71	86.4	4.00	85.65	
	Mean:				4.67	100.00	
	Significant Difference, 20: 1:				0.92	19.70	
	Sophia, Field 8 W. "A." Reaped 15.ix.49 at 14.25 months.						
MEANS OF 4 PLOTS:	B. 43413	49.85	14.31	87.2	7.13	126.19	7
	B. 43398	53.10	12.10	86.3	6.42	113.63	
	B. 4214	41.80	14.99	90.5	6.26	110.80	
	D. 49/41	42.26	13.85	89.9	5.85	103.54	
	D. 142/41	40.70	13.91	89.9	5.66	100.18	
	B. 43336	41.21	13.61	88.6	5.61	99.29	
	B. 34104	42.77	13.07	87.8	5.59	98.94	
	B. 43403	21.36	12.72	84.8	2.71	47.96	
	Mean:				5.65	100.00	
	Significant Difference, 20: 1:				1.38	24.42	
	Sophia, Field 8 W. "B." Reaped 9.ix.49 at 14.25 months.						
MEANS OF 4 PLOTS:	D. 142/41	44.54	15.17	89.1	6.76	115.16	8
	B. 43349	47.89	13.73	89.0	6.57	111.93	
	B. 43218	40.71	15.15	90.2	6.17	105.11	
	B. 34104	43.05	13.57	89.6	5.84	99.49	
	B. 4362	41.83	13.85	88.9	5.79	98.64	
	D. 49/41	40.03	13.59	90.2	5.52	94.04	
	B. 43229	37.77	14.30	90.9	5.40	91.99	
	B. 43235	41.11	11.91	86.5	4.89	83.30	
	Mean:				5.87	100.00	
	Significant Difference, 20: 1:				—	—	

TABLE III. (Contd.).—**Results of Plant Cane Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Trial No.
	Sophia, Field 11 W. "A." Reaped 30.iv.49 at 12.50 months.						
MEANS OF 4 PLOTS:	D. 13/44	38.49	13.36	84.6	5.14	116.82	9
	D. 12/44	37.23	13.61	89.8	5.06	115.00	
	D. 17/44	35.94	12.59	87.1	4.52	102.73	
	D. 7/44	33.03	13.32	87.9	4.40	100.00	
	D. 9/44	32.86	13.16	85.4	4.32	98.18	
	D. 11/44	33.82	11.76	83.0	3.97	90.23	
	D. 50/43	29.44	13.32	85.9	3.92	89.09	
	B. 34104	25.20	15.28	89.9	3.85	87.50	
	Mean:				4.40	100.00	
	Significant Difference, 20: 1:				0.88	20.00	
	Sophia, Field 11 W. "B." Reaped 28.iv.49 at 12.50 months.						
MEANS OF 4 PLOTS:	D. 55/43	43.98	14.92	88.9	6.56	130.16	10
	D. 62/43	32.85	15.53	89.9	5.10	101.19	
	D. 42/43	35.86	13.90	90.4	4.98	98.81	
	D. 28/43	31.99	14.84	89.5	4.75	94.25	
	D. 51/43	33.25	14.29	87.5	4.75	94.25	
	B. 34104	27.32	15.07	91.0	4.12	81.75	
	Mean:				5.04	100.00	
	Significant Difference, 20: 1:				—	—	
	Sophia, Field 12 W. "A." Reaped 25.v.49 at 12.25 months.						
MEANS OF 4 PLOTS:	D. 158/41	48.75	15.88	88.8	7.74	122.27	11
	D. 49/41	48.40	14.94	88.9	7.23	114.22	
	B. 43413	44.39	15.24	89.3	6.76	106.79	
	B. 43336	43.39	14.42	88.6	6.26	98.89	
	B. 43218	43.19	14.04	88.4	6.06	95.73	
	B. 43234	43.22	13.02	86.2	5.63	88.94	
	D. 30/43	38.48	14.28	88.9	5.49	86.73	
	B. 34104	38.78	14.07	91.1	5.46	86.26	
	Mean:				6.33	100.00	
	Significant Difference, 20: 1:				1.03	16.27	
	Sophia, Field 12 W. "B." Reaped 20.v.49 at 12.25 months.						
MEANS OF 4 PLOTS:	D. 4/43	54.57	14.73	87.3	8.04	122.94	12
	D. 34/43	46.00	14.25	87.7	6.56	100.31	
	D. 35/43	46.63	13.95	85.6	6.50	99.39	
	D. 25/43	45.70	14.10	85.4	6.44	98.47	
	D. 21/43	43.65	14.47	88.8	6.31	96.48	
	D. 26/43	45.54	13.85	87.9	6.31	96.48	
	B. 34104	49.45	12.65	91.6	6.25	95.57	
	D. 17/43	43.91	13.56	88.0	5.95	90.98	
	Mean:				6.54	100.00	
	Significant Difference, 20: 1:				0.88	13.46	

TABLE III. (Contd.).—Results of Plant Cane Variety Trials on Demerara Frontland Clay.

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Trial No.
	Sophia. Field 15 W. "B." Reaped 19.x.49 at 12.75 months.						
MEANS OF 3 PLOTS:	B. 4448	44.33	15.37	90.3	6.81	120.96	13
	B. 44165	42.06	15.75	91.4	6.62	117.58	
	B. 34104	44.82	14.32	89.6	6.42	114.03	
	B. 44150	40.72	14.08	89.9	5.73	101.78	
	B. 4408	43.73	13.00	88.4	5.68	100.89	
	B. 4467	44.53	11.48	85.9	5.11	90.76	
	M. 134.32	35.06	12.45	86.4	4.36	77.44	
	B. 44248	40.52	10.73	84.3	4.35	77.26	
	Mean:				5.63	100.00	
	Significant Difference. 20: 1:				1.27	22.56	
	Sophia, Field 16 W. Reaped 3.ii.49 at 14.00 months.						
MEANS OF 3 PLOTS:	D. 158/41	44.81	15.81	88.6	7.09	127.06	14
	D. 149/41	44.75	14.61	88.8	[illegible]	[illegible]	
	D. 54/43	45.49	14.93	90.5	[illegible]	[illegible]	
	D. 48/43	45.62	14.01	86.4	[illegible]	[illegible]	
	D. 62/43	45.57	13.48	87.7	[illegible]	119.04	
	D. 7/43	43.33	13.96	87.1	[illegible]	108.42	
	D. 4/43	41.90	14.35	88.6	6.01	107.71	
	D. 26/41	41.47	13.82	85.4	5.73	102.69	
	D. 41/43	41.13	13.55	91.3	[illegible]	[illegible]	
	D. 42/43	41.02	12.73	87.8	[illegible]	[illegible]	
	D. 145/41	33.76	14.30	88.6	[illegible]	[illegible]	
	D. 58/43	32.29	14.41	88.5	[illegible]	[illegible]	
	B. 34104	37.67	11.96	85.3	4.51	80.82	
	D. 2/43	32.18	13.61	85.8	[illegible]	78.59	
	D. 51/43	36.75	11.08	83.0	[illegible]	[illegible]	
	Mean:				5.85	100.00	
	Significant Difference. 20: 1:				1.42	25.45	
	Pln. L.B.I., Field 50 L.R. Reaped 21.xii.49 at 12.25 months.						
MEANS OF 5 PLOTS:	B. 40105	58.41	13.87	86.7	8.10	119.82	15
	B. 44111	53.38	14.29	88.3	7.63	112.87	
	D. 158/41	51.87	13.89	85.9	7.26	107.40	
	Co. 421	54.84	12.75	83.8	6.99	103.40	
	B. 37172	48.46	13.30	86.7	6.45	95.41	
	B. 34104	43.49	14.69	88.8	6.39	94.53	
	B. 44278	53.08	11.11	85.7	5.90	87.28	
	D. 3/44	48.42	11.03	80.7	5.34	78.99	
	Mean:				6.76	100.00	
	Significant Difference. 20: 1:				1.16	17.16	
	Pln. Leonora, Field 48 E. Reaped 28.iv.49 at 12.75 months.						
MEANS OF 5 PLOTS:	B. 4098	51.55	13.88	89.4	7.16	121.56	16
	D. 51/43	52.97	12.69	84.9	6.72	114.09	
	B. 41227	50.82	12.94	90.4	6.58	111.71	
	B. 34104	37.27	13.92	90.0	5.19	88.12	
	D. 14/34	37.85	12.98	89.8	4.91	83.36	
	D. 37/43	42.75	11.13	85.0	4.76	80.81	
	Mean:				5.89	100.00	
	Significant Difference, 20: 1:				0.74	12.56	

TABLE III. (Contd.). **Results of Plant Cane Variety Trials on Berbice Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Trial No.
	Plu. Rose Hall, Field 17 Tap. Reaped 11.x.49 at 14.75 months.						
MEANS OF 5 PLOTS	B. 6214	62.92	11.94	80.5	7.51	123.93	17
	B. 6306	58.67	11.97	78.7	6.61	109.08	
	B. 43229	56.30	12.56	83.4	6.32	104.29	
	B. 41211	62.37	9.70	74.7	6.11	100.82	
	B. 34104	56.30	12.02	70.9	6.06	100.00	
	B. 43[illegible]	50.62	10.98	77.9	5.55	91.58	
	B. 43231	40.00	8.89	68.7	4.28	70.63	
	Mean :				6.06	100.00	
	Significant Difference, 20 : 1 :				0.79	13.04	
	Plu. Albion, Field 3 A. Reaped 23.iii.49 at 12.50 months.						
MEANS OF 5 PLOTS :	B. 41227	59.08	12.74	84.5	6.70	116.35	18
	B. 41231	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	B. 40105	47.40	13.15	80.0	6.28	109.81	
	B. 6[illegible]	46.37	12.74	78.0	5.91	101.72	
	Co. 421	44.34	12.84	82.0	5.69	97.93	
	D. 29[illegible]43	43.05	12.70	82.1	5.57	95.87	
	B. 871[illegible]	38.61	12.60	84.5	4.89	84.17	
	B. 34104	34.36	13.93	85.0	4.78	82.27	
	Mean :				[illegible]	[illegible]	
	Significant Difference, 20 : 1 :				0.98	16.52	

Results of Plant Cane Variety Trials on Riverside Clay.

	Plu. Wales, Field 22 B.V. Reaped 11.xi.49 at 18.75 months.						
MEANS OF 5 PLOTS :	D. 62[illegible]43	66.31	16.02	90.4	10.65	122.41	19
	B. 41[illegible]	62.58	14.92	89.9	9.34	107.36	
	B. 4010[illegible]	60.50	15.08	86.6	9.31	107.01	
	D. [illegible]53	53.96	16.08	92.1	8.68	[illegible].77	
	B. 34104	53.31	13.43	89.6	7.16	82.30	
	D. [illegible]43	59.18	11.94	88.6	7.07	81.28	
	Mean :				[illegible].[illegible]	[illegible]	
	Significant Difference, 20 : 1				1.21	13.91	
	Plu. Providence, Dem. Field 5 Ry. Reaped 18.iii.49 at 15.25 months.						
MEANS OF 5 PLOTS :	D. 1[illegible]41	52.29	14.29	87.3	7.44	111.04	20
	D. [illegible]43	53.42	13.56	88.1	7.24	108.06	
	Co. 419	49.78	13.63	86.8	6.79	101.34	
	B. 34104	51.10	13.00	86.6	6.67	99.55	
	D. 142[illegible]41	50.58	12.95	88.6	6.89	98.36	
	D. 28[illegible]41	49.99	10.97	81.3	5.48	81.79	
	Mean :				6.70	100.00	
	Significant Difference, 20 : 1 :				1.15	17.16	
	Plu. Blairmont, Field 24 R. Reaped 22.ix.49 at 15.50 months.						
MEANS OF 5 PLOTS :	D. 7[illegible]	52.08	14.58	87.5	7.49	115.76	21
	Co. 421	50.48	13.98	85.8	7.05	108.88	
	B. [illegible]	47.83	14.49	88.3	6.90	106.65	
	D. [illegible]	48.16	13.68	85.6	6.58	101.70	
	D. [illegible]43	49.18	12.86	84.2	6.32	97.68	
	B. [illegible]8	46.44	13.89	84.7	6.17	95.36	
	B. 4[illegible]	44.51	12.75	85.7	5.66	87.48	
	B. 4[illegible]	40.29	13.87	84.9	5.59	86.40	
	Mean :				6.47	100.00	
	Significant Difference, 20 : 1 :				—	—	

Table III (Continued) — Records of Plant Cane Variety Trials on Peyton Clay.

Locality	Variety	Yield per Acre	Purity	Increase or Decrease per Acre		Total No.
				Tons	% More	
Plat Diamond Field 107 M.X. 1, Ratooned 11 months						
Diamond Field	[illegible]	42.78	85.7	+3.02	27.4	22
	[illegible]	41.22	89.3	+1.46	13.2	
	[illegible]	40.16	90.1	+0.40	3.6	
	[illegible]	39.76	88.2	0.00	0.0	
	[illegible]	35.18	84.7	−4.58	−11.5	
	[illegible]	32.83	87.4	−6.93	−17.4	
Mean				+0.37	+0.94	
Probable Error of Difference, ±				1.58	3.98	
Plat Diamond Field 108 M.X. 6, Ratooned 11 months						
Diamond Field	[illegible]	40.21	84.6	+2.51	6.6	23
	[illegible]	39.62	86.22	+1.92	5.0	
	[illegible]	39.38	85.2	+1.68	4.4	
	[illegible]	38.76	87.1	+1.06	2.8	
	[illegible]	38.52	87.1	+0.82	2.2	
	[illegible]	38.31	88.3	+0.61	1.6	
	[illegible]	37.70	89.9	0.00	0.0	
Mean				+1.23	+3.26	
Probable Error of Difference, ±				[illegible]	[illegible]	
Plat Lauzman Field 97 M.X. 1, Ratooned 10 months 20 days						
Meadow Farm	[illegible]	52.08	92.8	44.5	5.8	24
	[illegible]	51.76	93.5	44.1	5.6	
	[illegible]	49.25	89.7	41.7	5.0	
	[illegible]	48.72	91.5	41.1	5.1	
	[illegible]	48.63	92.2	41.0	5.3	
	[illegible]	47.80	91.4	40.2	5.7	
	[illegible]	7.60	91.6	39.9	5.9	
Mean				[illegible]	[illegible]	
Probable Error of Difference, ±				1.15	2.73	

SUB-SECTION C.—FIRST RATOON VARIETY TRIALS.

Thirteen first ratoon variety trials were reaped. They have been classified as follows :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	25—32	8
Berbice Frontland Clay	33—35	3
Riverside Clay	36	1
Pegassy Clay	37	1

Results of these trials appear in Table IV.

TABLE IV.—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
	Sophia, Field 10 E. "A." Reaped 14.x.49 at 13.00 months.								
MEANS OF 4 PLOTS :	D. 158/41	43.54	14.53	87.8	6.33	122.44	D. 158/41	14.04	25
	D. 145/41	39.20	14.25	88.7	5.58	107.93	D. 145/41	13.82	
	D. 142/41	34.78	13.39	86.5	4.66	90.14	D. 142/41	11.72	
	B. 34104	32.21	12.84	89.6	4.13	79.88	B. 34104	10.22	
	Mean:				5.17	100.00			
	Significant Difference, 20 : 1 :				0.77	14.89			
	Sophia, Field 10 E. "B." Reaped 12.x.49 at 12.75 months.								
MEANS OF 4 PLOTS :	D. 58/43	40.57	14.49	85.2	5.88	124.58	D. 58/43	11.87	26
	D. 149/41	36.75	13.14	87.0	4.83	102.33	D. 149/41	11.87	
	D. 142/41	37.44	12.81	87.6	4.79	101.48	D. 55/43	11.43	
	D. 145/41	31.57	14.79	88.6	4.67	98.94	D. 142/41	11.10	
	B. 34104	34.21	12.02	86.5	4.11	87.08	D. 145/41	10.73	
	D. 55/43	36.55	11.09	82.7	4.05	85.80	B. 34104	9.27	
	Mean:				4.72	100.00			
	Significant Difference, 20 : 1 :				1.05	22.25			
	Sophia, Field 5 W. "A." Reaped 23.ix.49 at 12.75 months.								
MEANS OF 4 PLOTS :	D. 6/43	46.41	15.20	90.5	7.05	125.22	D. 6/43	15.98	27
	B. 34104	44.14	13.87	89.0	6.12	108.70	D. 40/43	14.64	
	D. 40/43	40.30	15.01	89.9	6.05	107.46	B. 34104	14.38	
	D. 10/43	42.38	13.91	86.4	5.90	104.80	D. 24/43	14.13	
	D. 22/43	44.18	12.49	86.9	5.52	98.05	D. 10/43	12.80	
	D. 24/43	36.58	13.80	87.1	5.05	89.70	D. 61/43	12.47	
	D. 61/43	37.82	13.00	85.7	4.92	87.39	D. 22/43	11.67	
	D. 19/43	29.95	14.78	86.0	4.43	78.69	D. 19/43	10.28	
	Mean :				5.63	100.00			
	Significant Difference, 20 : 1 :				1.18	20.96			

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre.		Combined Results for 2 Crops, Plants and 1st Ratoons.		Trial No.
					Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.	
	Sophia. Field 5 W. "B." Reaped 19.ix.49 at 12.50 months.								
MEANS OF 4 PLOTS:	D. 7/43	44.20	13.95	89.8	6.16	113.24	D. 50/43	14.79	28
	D. 9/43	43.50	13.82	86.7	6.01	110.48	D. 7/43	14.35	
	D. 50/43	43.65	13.78	83.8	6.01	110.48	D. 9/43	13.86	
	B. 40102	39.83	14.44	84.2	5.75	105.70	D. 142/41	13.27	
	D. 142/41	40.12	13.96	87.3	5.60	102.94	B. 40102	12.62	
	D. 1/43	34.38	14.73	89.4	5.06	93.01	D. 2/42	12.17	
	D. 2/42	37.26	13.21	87.6	4.92	90.44	D. 1/43	11.55	
	B. 34104	34.53	11.61	83.6	4.01	73.71	B. 34104	11.12	
	Mean:				5.44	100.00			
	Significant Difference, 20 : 1:				1.29	23.71			
	Sophia, Field 10 W. "A." Reaped 6.x.49 at 12.75 months.								
MEANS OF 4 PLOTS:	D. 54/43	43.50	14.40	87.7	6.26	112.59	D. 58/43	14.02	29
	D. 58/43	42.93	13.69	86.4	5.87	105.58	D. 54/43	13.76	
	D. 142/41	39.99	14.48	91.4	5.79	104.14	D. 142/41	12.90	
	D. 48/43	36.00	14.04	86.4	5.05	90.83	D. 48/43	12.10	
	B. 34104	36.58	13.15	88.7	4.81	86.51	B. 34104	9.70	
	Mean:				5.56	100.00			
	Significant Difference, 20 : 1:				0.92	16.55			
	Sophia, Field 10 W. "B." Reaped 30.ix.49 at 12.75 months.								
MEANS OF 4 PLOTS:	D. 142/41	39.36	14.93	88.5	5.88	120.00	D. 142/41	12.23	30
	D. 11/43	36.58	14.35	88.7	5.25	107.14	D. 11/43	11.58	
	D. 18/43	37.03	13.28	88.2	4.92	100.41	D. 18/43	11.49	
	D. 40/40	31.73	14.16	87.1	4.50	91.84	D. 40/40	10.76	
	B. 34104	31.00	12.72	86.9	3.94	80.41	B. 34104	9.33	
	Mean:				4.90	100.00			
	Significant Difference, 20 : 1:				—	—			
	Pln. Ogle, Field 38 O. Reaped 22.iv.49 at 14.50 months.								
MEANS OF 5 PLOTS:	Co. 421	49.27	11.62	85.0	5.73	113.24	Co. 421	13.53	31
	D. 49/41	47.95	10.91	83.3	5.23	103.36	D. 29/41	13.28	
	D. 29/41	54.51	9.58	81.1	5.22	103.16	B. 34104	12.96	
	B. 34104	42.12	11.08	83.4	4.66	92.09	D. 161/41	12.76	
	D. 161/41	44.07	10.15	80.3	4.47	88.34	D. 49/41	11.95	
	Mean:				5.06	100.00			
	Significant Difference, 20 : 1:				—	—			
	Pln. L.B.I., Field 55 A.C.M. Reaped 9.xii.49 at 12.00 months.								
MEANS OF 5 PLOTS:	B. 41227	47.29	13.85	89.1	6.55	129.96	B. 41227	14.36	32
	B. 40102	46.95	12.43	85.7	5.84	115.87	B. 40102	12.63	
	B. 40105	45.27	12.60	86.5	5.70	113.19	D. 142/41	12.54	
	D. 142/41	37.78	13.96	86.9	5.27	104.56	B. 40105	11.63	
	Co. 421	38.61	12.66	85.4	4.89	97.02	Co. 421	11.62	
	B. 34104	15.85	12.73	84.9	2.02	40.08	B. 34104	6.48	
	Mean:				5.04	100.00			
	Significant Difference, 20 : 1:				0.94	18.65			

TABLE IV. (Contd.).—**Results of First Ratoon Variety Trials on Berbice Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.	Trial No.
Pln. Blairmont, Field 36 Rp. Reaped 10.ii.49 at 14.25 months.									
MEANS OF 5 PLOTS:	B. 37161	45.36	14.62	88.8	6.63	107.63	B. 41211	11.96	33
	D. 49/41	43.86	14.60	88.4	6.40	103.90	D. 49/41	11.08	
	B. 37193	47.26	13.48	87.6	6.37	103.41	B. 37161	10.97	
	B. 41211	46.24	13.67	87.5	6.32	102.60	B. 37193	10.47	
	B. 34104	39.54	14.31	87.6	5.66	91.88	Co. 421	9.58	
	Co. 421	43.27	12.85	85.7	5.56	90.26	B. 34104	8.28	
	Mean:				6.16	100.00			
	Significant Difference, 20: 1:				0.71	11.53			
Pln. Rose Hall, Field T. 8 B. Reaped 2.xi.49 at 11.25 months.									
MEANS OF 5 PLOTS:	B. 41227	40.88	14.91	85.9	6.09	117.57	B. 41227	12.49	34
	B. 40105	37.25	14.93	87.6	5.56	107.34	B. 40105	12.14	
	B. 40102	40.55	13.69	87.5	5.55	107.14	B. 40102	11.76	
	D. 142/41	33.77	15.08	87.7	5.09	98.26	Co. 421	10.83	
	Co. 421	33.69	14.26	84.3	4.80	92.66	D. 142/41	10.79	
	B. 34104	28.66	13.98	85.8	4.01	77.41	B. 34104	10.01	
	Mean:				5.18	100.00			
	Significant Difference, 20: 1:				0.62	11.97			
Pln. Skeldon, Field A. 10 Section 82, Reaped 21.xii.49 at 12.25 months.									
MEANS OF 5 PLOTS:	B. 4098	45.77	15.52	89.2	7.10	115.45	B. 4098	12.26	35
	B. 34104	43.04	15.40	88.9	6.63	107.80	B. 37161	11.00	
	B. 37161	45.50	14.06	88.6	6.40	104.06	B. 43330	10.41	
	B. 43330	43.89	13.39	84.6	5.88	95.61	B. 34104	10.29	
	Co. 421	34.03	13.99	86.1	4.76	77.40	Co. 421	9.53	
	Mean:				6.15	100.00			
	Significant Difference, 20: 1:				0.85	13.82			
Results of a First Ratoon Variety Trial on Riverside Clay.									
Pln. Versailles, Field 31 V.S. Reaped 23.iii.49 at 11.25 months.									
MEANS OF 5 PLOTS:	Co. 421	27.99	13.45	88.0	3.77	102.45	D. 142/41	12.00	36
	D. 142/41	27.11	13.50	88.8	3.66	99.46	Co. 421	10.54	
	D. 49/41	27.98	12.93	89.8	3.62	98.37	D. 49/41	8.86	
	Mean:				3.68	100.00			
	Significant Difference, 20: 1:				--	--			
Results of a First Ratoon Variety Trial on Pegassy Clay.									
Pln. Lusignan, Field L.E.E. 8 Reaped 17.xii.49 at 12.75 months.									
MEANS OF 5 PLOTS:	D. 158/41	36.43	14.72	88.4	5.36	120.18	D. 158/41	13.52	37
	B. 41211	37.07	13.35	87.0	4.95	110.99	D. 142/41	11.29	
	D. 142/41	32.39	14.06	88.5	4.55	102.02	B. 41211	11.09	
	B. 37161	32.28	14.03	88.9	4.53	101.57	B. 37161	10.98	
	Co.421	29.51	13.76	90.2	4.06	91.03	Co. 421	9.56	
	B. 34104	22.52	14.61	89.8	3.29	73.77	B. 34104	9.28	
	Mean:				4.46	100.00			
	Significant Difference, 20: 1:				0.59	13.17			

SUB-SECTION D.—SECOND RATOON VARIETY TRIALS.

Second ratoon variety trials number five classified as shown :—

Soil Type & Locality.	*Index No. of Trials.*	*No. of Trials.*
Demerara Frontland Clay	38 — 39	2
Berbice Frontland Clay	40	1
Riverside Clay	41	1
Pegassy Clay	42	1

Results of these Trials are shown in Table V.

TABLE V.—**Results of Second Ratoon Variety Trials on Demerara Frontland Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons	Trial No.
Sophia, Field 12 E. "B." Reaped 16.ii.49 at 11.25 months.									
MEANS OF 4 PLOTS :	B. 34104	35.06	13.86	89.1	4.86	114.08	Co. 421	17.46	38
	D. 49/41	31.59	14.86	89.7	4.69	110.09	D. 49/41	16.39	
	B. 37193	29.93	14.62	90.6	4.37	102.58	B. 34104	16.21	
	Co. 421	29.36	14.12	87.4	4.14	97.18	B. 37193	15.11	
	D. 150/41	26.34	12.30	86.0	3.24	76.06	D. 150/41	13.19	
	Mean :				4.26	100.00			
	Significant Difference, 20 : 1 :				0.80	18.78			
Sophia, Field 13 E. Reaped 26.ix.49 at 13.00 months.									
MEANS OF 4 PLOTS :	D. 158/41	43.02	15.02	90.5	6.46	113.13	D. 158/41	19.50	39
	B. 34104	36.27	14.91	89.9	5.41	94.75	D. 130/41	17.54	
	D. 130/41	34.87	15.08	89.4	5.26	92.12	B. 34104	16.94	
	Mean :				5.71	100.00			
	Significant Difference, 20 : 1 :				—	—			

Results of a Second Ratoon Variety Trial on Berbice Frontland Clay.

Pln. Albion, Field 11 A. Reaped 3.xi.49 at 11.25 months.									
MEANS OF 5 PLOTS :	D. 49/41	45.96	14.66	87.4	6.74	105.48	D. 49/41	18.98	40
	B. 34104	42.76	15.09	90.9	6.45	100.94	B. 34104	17.91	
	Co. 421	42.12	14.18	86.9	5.97	93.43	Co. 421	17.04	
	Mean :				6.39	100.00			
	Significant Difference, 20 : 1 :				—	—			

TABLE V. (Contd.).—**Results of a Second Ratoon Variety Trial on Riverside Clay.**

	Variety.	Cane per Acre, Tons.	Pol. % Cane.	Purity.	Sucrose in Cane per Acre. Tons.	Sucrose in Cane per Acre. % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre. Tons.	Trial No.
	Pln. Farm, Field 45 E.C.G. Reaped 31.iii.49 at 11.50 months.								
MEANS OF 5 PLOTS:	B. 37161	20.92	12.62	88.3	2.64	113.79	B. 34104	11.66	41
	D. 14/34	15.89	13.68	91.5	2.17	93.53	D. 14/34	11.29	
	B. 34104	16.28	13.24	90.6	2.16	93.10	B. 37161	11.02	
	Mean:				2.32	100.00			
	Significant Difference, 20: 1:				—	—			
	Results of a Second Ratoon Variety Trial on Pegassy Clay.								
	Pln. Schoon Ord. Field 16 O. Reaped 22.iii.49 at 12.25 months.								
MEANS OF 5 PLOTS:	B. 34104	31.89	13.63	91.3	4.33	104.34	D. 14/34	15.65	42
	D. 14/34	29.02	14.29	91.5	4.15	100.00	B. 37161	14.61	
	B. 37161	30.36	13.06	91.3	3.97	95.66	B. 34104	14.54	
	Mean:				4.15	100.00			
	Significant Difference, 20: 1:				—	—			

SUB-SECTION E.—VARIETY PERFORMANCE SUMMARY.

Varieties in experiments during 1949 will be discussed under the following categories :—

(a) Standard Canes ;

(b) Barbados Seedlings produced prior to the B.40' series ;

(c) Barbados Seedlings of the B.40' and B.41' series and Demerara Seedlings of the D.1941 series ;

(d) Barbados Seedlings of the B.42' and B.43' series and Demerara Seedlings of the D.1943 series ;

(e) Barbados Seedlings of the B.44' series and recent Demerara Seedlings.

A. STANDARD CANES.

B.34104 (Co. 281 x B.H. 10/12)

Trial Nos : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42.

B.34104 was the principal standard cane used during 1949 and was included in all but one of the variety trials reaped during the year. Unfortunately this variety failed once again to reproduce in variety experiments the consistently high yielding ability which characterises it as a commercial cane. This was no

doubt due in part to rat damage (observed to be acute in trials 23, 24, 32 and 37) but even where there were no signs of attack, it occasionally gave very disappointing results. However, making every allowance for pest damage and other unexplained failures, it is impossible to escape the conclusion that B.34104 is being beaten on merit by some of the new varieties under test. With this in view an attempt will be made in 1950 to include the Barbados variety B.41227 as an additional standard in as many trials as possible.

D.14/34 (Co. 281 x Diamond 10)

Trial Nos : 16, 19, 22, 41, 42.

This cane occurred in five experiments in 1949 and was characterised by its uniformly excellent juice and fair yields. It was outyielded by B.41227 on all three occasions on which they met, twice by significant margins.

Co. 421 (P.O.J. 2878 x B. 3412)

Trial Nos : 15, 18, 21, 24, 31, 32, 33, 34, 35, 36, 37, 38, 40.

Co. 421 was used as a standard in thirteen experiments in 1949. As plants its yields were satisfactory but it ratooned weakly (with the exception of Trial No. 31 Ogle 38) and its place will be taken whenever possible in 1950 by B.41227.

Co. 419 (P.O.J. 2878 x Co. 290)

Trial Nos : 20, 23.

This cane was used as an additional standard in two trials in 1949 and provided reliable comparisons in both.

B. Barbados Seedlings Produced Prior to the B.40' Series.

Only two canes in this group remain under test in 1950. They are B.37161 and B.37172.

B.37161 (B.3365 x B.603)

Trial Nos : 33, 35, 37, 41, 42.

Reaped three times as first ratoons and twice as second ratoons in 1949 this variety has almost completed its experimental testing. Its performance in 1949 confirmed its merit—it was superior to the standard in tons sucrose per acre on 7 occasions (four times significantly) and was only beaten by the standards 3 times (never significantly). It ratooned satisfactorily in all experiments. A small acreage of this cane will be reaped in 1950 by the majority of estates and it seems safe to predict that it will prove at least as good as B.34104. It is doubtful however whether it will be able to hold its own with such canes as B.41227, B.4098, D.158/41 etc.

B.37172 (P.O.J. 2878 x B. 2935)

Trial Nos : 15, 18.

This variety was harvested in two trials during 1949. At Albion 3 Jubilee (Trial No. 18) it performed very badly and was significantly inferior to B.40102, B.40105, B.41211 and B.41227 in addition to having poor quality juice. At

L.B.I. (Trial No. 15) it did moderately being significantly outyielded by B.44111 and B.40105. It seems unlikely that this cane will compete successfully with the more recent Barbados seedlings.

C. Barbados Seedlings of the B.40' and B.41' Series and Demerara Seedlings of the D.1941 Series

Results of variety trials in 1949 led to the elimination of a number of canes in this group which now consists of the following varieties :—

B.4098, B.40102, B.40105, B.4110, B.41211, B.41227, D.49/41, D.142/41, D.145/41, D.149/41 and D.158/41.

None of the above has so far completed its experimental testing, but considerable information has accumulated regarding the varieties B.40102, B.40105, B.41211, B.41227, D.49/41 and D.142/41. Of these B.41227 may be regarded as the most promising but it is intended to complete the testing of the remainder before reaching a final decision.

B.4098 (B.3439 x Co. 290)

Trial Nos : 16, 21, 22, 35.

The testing of this important variety continued to lag behind schedule and it was one of the worst sufferers from 'thrown over' trials. It appeared in only four experiments during 1949 (three times as plants and once as first ratoons) and although it continued to show promise it is as yet impossible to make an accurate estimate of its merit. It encountered the standards on eight occasions during the year and was superior to them in respect of tons sucrose per acre on six, four times significantly. It was never significantly outyielded by a standard and its juice quality was very good in three out of four trials. B.4098 performed best in the trials at Leonora, Tuschen and Skeldon (Trial Nos : 16, 22, 35) but at Blairmont (Trial No: 21) it did only moderately. Its testing will be continued in 1950 and it has been distributed on a small scale to a few estates.

B.40102 (B.3439 x Co. 290)

Trial Nos : 18, 19, 23, 24, 28, 32, 34.

This variety occurred in four plant and three first ratoon trials in 1949. It is capable of very heavy yields under British Guiana conditions and proved markedly superior to the standards in this respect. On the other hand the quality of its juice was in general inferior to that of the standards so that although it is intended to continue its testing, it does not seem likely that it will be a commercial success. The following statistics summarise its 1949 performance.

	No. of Times superior to Standards.	*Significantly.*	*No. of Times inferior to Standards.*	*Significantly.*
Tons Sucrose/Acre	12	9	1	—
Pol. % Cane	4	—	9	—
Ratoon %	5	—	—	—

B.40105 (B.3439 x Co. 290)

Trial Nos : 15, 18, 23, 24, 32, 34.

This cane was reaped in four plant and two first ratoon variety trials and proved roughly equivalent in yielding ability to B.40102. Its juice quality on the other hand was satisfactory (8 times superior to the standards in 12 comparisons) so that it may be looked on as a promising variety. However, it is not intended to recommend it for commercial trial at this stage of its testing for two reasons. In the first place it possesses an undesirable prostrate, tangling habit and the mature canes are not straight; and secondly it was inferior to B.41227 on four out of the five occasions on which they met. A noteworthy feature of both B.40105 and B.40102 under British Guiana conditions is that they appear to ratoon satisfactorily which contrasts with their reported behaviour elsewhere in the Caribbean.

B.41211 (B.3439 x B.37252)

Trial Nos : 17, 18, 22, 23, 24, 33, 37.

The results of seven variety experiments in which B.41211 was included indicate that this important Barbados seedling which has shown great promise elsewhere in the West Indies is unlikely to be successful in British Guiana. Possessed of great vigour it frequently yielded heavily in trials but this was more than offset by the indifferent quality of its juice. Its performance, relative to the standards was as follows :—

	No. of Times superior to Standards.	*Significantly.*	*No. of Times inferior to Standards.*	*Significantly.*
Tons Sucrose/Acre	11	6	2	—
Pol. % Cane	4	—	9	—

Thus in spite of its high yielding ability and very desirable field characteristics (it is a thick soft straight cane popular with cutters) this variety will probably be discarded.

B.41227 (B.35207 x P.O.J. 2878)

Trial Nos : 1, 16, 18, 19, 22, 23, 24, 32, 34.

This cane was reported in Bulletin 17 as being the most promising in its group. The results of seven plant and two first ratoon trials in 1949 amply confirm this verdict and the decision, taken early in 1949, to distribute this variety to estates and to recommend its rapid extension appears well justified. Its performance in variety trials was remarkable for its consistency over a wider range of soil types and seasons of reaping. Thus at Albion on Berbice Frontland Clay (Trial No. 18) reaped early in the Spring it headed the list in respect of tons sucrose per acre and was significantly superior to B.34104, B.37172, D.26/41 and Co. 421. On Pegassy clay at Diamond (Trial No. 23), it significantly outyielded B.34104, D.49/41, B.41211, B.40105 and Co. 419. At

L.B.I. on East Coast Frontland Clay reaped in the late Autumn (Trial No. 32), it was again unbeaten and significantly superior to B.34104, Co. 421 and D.142/41. In all it encountered the standards on 17 occasions and outyielded them on 16, 14 times significantly—easily the best performance among those canes for which comparable data is available. Its juice quality as measured by Pol. % cane was satisfactory and it was superior to the standards in 10 out of 17 comparisions. In the field under British Guiana conditions B.41227 germinated readily and tillered profusely producing a large number of medium thick fairly straight stalks. When mature there is a tendency for it to lodge, especially where a heavy crop is produced, but it should prove more acceptable to cutters than B.34104. Although the testing of B.41227 is not yet complete, the results quoted above are in agreement with good reports concerning it received from Barbados and Jamaica and estates should continue to extend it as rapidly as possible.

D.49/41 (D.338/33 x Co. 213)

Trial Nos : 4, 7, 8, 11, 20, 23, 24, 31, 33, 36, 38, 40.

D.49/41 was the first of the Demerara 1941 series to be distributed to estates and is now nearing the completion of its testing. During 1949 it was harvested in a total of twelve experiments (seven plants, three first ratoons and two second ratoons) and performed satisfactorily, outyielding the standards on 13 out of 19 occasions (five times significantly). It does not do well on pegasse and is a heavy arrower ill-suited to planting in the Spring, but on clay and in the Autumn it is usually superior to the existing standards. It is not now considered to be as good as other canes of this series—notably D.142/41 and D.158/41—and was outyielded by B.41227 on the two occasions on which they met. Thus D.49/41 should not be further extended unless an immediate alternative to B.34104 is required, but may be expected to do well in those areas in which it has been planted according to the Station's recommendations.

D.142/41 (B.34104 x Co. 213)

Trial Nos : 7, 8, 20, 21, 22, 25, 26, 28, 29, 30, 32, 34, 36, 37.

The decision to distribute planting material of D.142/41 to estates was recorded in Bulletin 17. Its performance in variety trials during 1949 has further defined its capabilities and it may be described as being equal or slightly superior to B.34104 as regards yield and clearly superior to it from the point of view of juice quality. It produces medium to thick long straight canes which should prove most attractive to cutters and has in every way justified its small scale commercial trial. As against this it should be pointed out that in those trials in which it met the best of the new varieties (B.41227. D.158/41, etc.) it was outyielded by them and it does not seem likely that it will ever prove to be their equal in this respect. Whether the very desirable characteristics mentioned above will prove an economic compensation for the slightly lower yield which may be expected must await the results of estate field scale trials. Its performance in experiments during 1949 may be summarised as follows :

	No. of Times superior to Standards.	*Significantly.*	*No. of Times inferior to Standards.*	*Significantly.*
Tons Sucrose/Acre	17	6	3	—
Pol. % Cane	15	—	5	—
Ratoon %	8	—	4	—

D.158/41 (Co. 421 x D.166/34)

Trial Nos : 5, 11, 14, 15, 20, 25, 37, 39.

Described as 'a most promising seedling' in Bulletin 17, D.158/41 continued to perform well in 1949. Reaped in eight trials (five plants, two first ratoons and one second ratoon) it was never outyielded by any standard cane and indeed was only beaten three times (in a total of fifty comparisons) by any other variety. Of its 11 defeats of the standards 5 were by significant margins. Its juice quality was very good—ten out of eleven comparisons with the standards being in its favour and it proved a satisfactory ratooner. These results led to its nursery distribution being commenced and estates are advised to multiply it pending the accumulation of further experimental data.

In appearance D.158/41 is a broad leaved heavy stooling cane of semi-erect habit. It produces thick straight stems which are pale green or light yellow in colour. It is a heavy arrower but appears to have the vigour to compensate for this since it yielded well in the Autumn and Spring alike. Most of its testing has been on East Coast Frontland Clay but it has done well on Riverside Clay at Providence and on Pegassy Clay at Lusignan (Trial Nos: 20, 37). It has not so far been reaped in any trial in Berbice.

D.145/41 (Co. 421 x D.200/36), *D.149/41* (Co. 421 x D.200/36) and *B.4110* (B.3365 x P.O.J. 2878)

Trial Nos : 14, 25, 26.

These canes were reaped only in experiments at Sophia during 1949. They continued to show promise and will be further tested in 1950.

D. Barbados Seedlings of the B.42' and B.43' series and Demerara Seedlings of the D.1943 series.

B.4214 (B.3365 x Co. 290)	*B.4327* (B.34102 x B.3337)	*B.4306* (B.35206 x P.O.J. 2878)
B.4373 (B. 3354 x Co. 290)	*B.4362* (B.37161 x P.O.J. 2878)	*D.4/43* (D.200/36 x Diamond 10)
B.43214 (B.3353 x Co. 290)	*B.43229* (B.3365 x B.34104)	*D.25/43* (Co. 281 x D.200/36)
B.43253 (B.3439 x B.37175)	*B.43330* (B.35247 x B.3337)	*D.34/43* (D.14/34 x D.200/36)

B.43349 (B.37227 x B.3337)
B.43413 (M.D. 47 x Co. 290)
D.54/43 (Co. 421 x D.166/34)
D.18/43 (Co. 421 x Co. 290)
D.36/43 (D.14/34 x D.200/36)
B.43391 (B.35247 x B.3337)
D.40/43 (D.14/34 x D.200/36)
D.1/43 (D.200/36 x Co. 421)
D.24/43 (Co. 421 x Co. 290)
D.48/43 (Co. 421 x D. 166/34)
D.55/43 (Co. 421 x Co. 290)
D.35/43 (D.14/34 x D.200/36)
D.62/43 (Co. 421 x Co. 331)
D.6/43 (D.200/36 x Diamond 10)
D.28/43 (D.14/34 x D.200/36)
D.50/43 (Co. 421 x D.166/34)
D.58/43 (Co. 421 x Co. 331)

Preliminary testing of this large group of seedlings during 1949 led to the elimination of a considerable number. Those which were considered worthy of further trial were made up of 1 B.42' seedling, 11 B.43' seedlings and 17 of the D.1943 series. No cane in this group has so far reached an advanced stage in its testing programme and the following brief notes on some of the more promising performers must be looked on as provisional.

B.4214 (B.3365 x Co. 280)

Trial Nos : 7, 17.

This cane appears to be the only member of the B.42' series likely to do well under British Guiana conditions. Reaped in two plant cane trials during 1949 it showed excellent yielding ability coupled with juice of a high quality.

B.4327 (B.34102 x B.3337) *B.4373* (B.3354 x Co. 290) *B.43214* (B.3353 x Co. 290)
B.43253 (B.3439 x B.37175)

These four canes were reaped in only one trial—13 W. Sophia—as first ratoons. B.4327 yielded well and had a good juice. B.4373 ratooned extremely vigorously and topped the list (it had been 6th as plants) and it also had a relatively rich juice. B.43214 repeated as 1st ratoons the promising performance it had given as plants and B.43253 was remarkable (as it had been as plants) for the exceptionally high quality of its juice. All four are scheduled for further testing in 1950.

B.43349 (B.37227 x B.3337)

Trial No : 8.

B.43413 (M.D.47 x Co. 290)

Trial Nos : 7, 11.

These canes were reaped in trials at Sophia and appeared to be very promising, B.43413 particularly so.

B.4362 (B.37161 x P.O.J. 2878)

Trial No : 8.

B.43391 (B.35247 x B.3337)

Variety Sorting Trial 13 W. Sophia.

These canes both of which are reported as being of great promise in Barbados have so far performed only moderately well under British Guiana conditions. They will be tested further.

Among the Demerara seedlings in this category two of the most promising are D.54/43 and D.62/43. Brief notes on their performance in experiments are as follows :—

D. 54/43 (Co. 421 x D. 166/34)

Trial Nos : 14, 29 and Variety Sorting Trial 13 W. Sophia.

This seedling was reaped only at Sophia but was superior to the standard (B. 34104) in all three experiments both in yield (always significantly) and juice quality. It will receive estate testing in 1950.

D. 62/43 (Co. 421 x Co. 331)

Trial Nos : 1, 6, 10, 14, 19, 21.

D. 62/43 may perhaps be looked on as the most outstanding seedling of the D. 1943 series. It was included in six plant cane trials reaped during 1949 and proved to be an exceptionally heavy yielding variety. In this respect it was superior to the standards in 6 out of 8 comparisons, four times by significant margins. Its juice quality appears to be about equal to that of the standdards and it is intended to subject it to full scale experimental testing in its next season.

E. Barbados Seedlings of the B. 44' Series and Recent Demerara Seedlings.

The majority of the B. 44' series were included in the Variety Sorting Trial in 15 W. Sophia. In addition 6 seedlings of this series were tested in Trial No. 13. The results of these two trials suggest that the seedlings B. 4425 and B. 4485 should be discarded. Among those which will receive extensive testing, B. 44244, B. 44341, B. 44111, B. 4448 and B. 44165 appear to be the most promising.

Among the D. 1944 canes, D. 1/44, D. 6/44, D. 7/44, D. 26/44 and D. 27/44 deserve further trial.

SUB-SECTION F.—GENERAL SUMMARY AND RECOMMENDATIONS.

Table VI compares the performance of all canes which have been reaped in experiments for at least two cycles with B. 34104. A minimum of 5 experiments has been chosen as qualification for inclusion in the table. Table VII compares for some of the more important varieties certain data indicative of juice quality.

TABLE VI.—**General Mean Sucrose Yields in Tons per Acre from all Experiments.**

Variety.	Plants.		First Ratoons.		Second Ratoons.		Total Yield.	Total Yield. B. 34104 = 100.00.
	Yield.	No. of Expts.	Yield.	No. of Expts.	Yield.	No. of Expts.		
Three Crops, Plants, First and Second Ratoons.								
D. 158/41	6.66	8	6.80	3	4.99	1	18.45	130.02
Co. 421	6.24	21	5.21	15	4.18	6	15.63	110.15
B. 37161	6.29	10	4.84	9	4.35	3	15.48	109.09
D. 49/41	5.99	14	4.95	7	4.22	2	15.16	106.84
B. 37193	5.72	4	4.92	4	3.92	2	14.56	102.61
B. 34104	**5.35**	**67**	**4.66**	**38**	**4.18**	**18**	**14.19**	**100.00**
D. 14/34	5.19	27	4.55	18	3.98	8	13.72	96.69
Two Crops, Plants and First Ratoons.								
B. 41227	7.26	10	9.77	2	—	—	17.03	170.13
B. 40105	7.00	7	8.70	2	—	—	15.70	156.84
B. 40102	6.73	7	7.96	3	—	—	14.69	146.75
D. 54/43	7.36	3	5.90	2	—	—	13.26	132.47
D. 58/43	6.90	3	6.14	2	—	—	13.04	130.27
B. 41211	6.68	5	6.00	2	—	—	12.68	126.67
D. 142/41	6.26	14	6.40	8	—	—	12.66	126.47
D. 145/41	6.49	3	5.80	2	—	—	12.29	122.78
D. 48/43	6.91	3	5.08	2	—	—	11.99	119.78
B. 4098	6.60	4	4.99	1	—	—	11.59	115.78
D. 7/43	5.53	4	5.99	2	—	—	11.52	115.08
D. 55/43	6.70	4	4.59	1	—	—	11.29	112.79
B. 34104	**5.35**	**67**	**4.66**	**38**	—	—	**10.01**	**100.00**

TABLE VII.—**The Quality of the Most Promising Seedlings as Compared with B. 34104.**

Variety.	Pol. % Cane.		Juice Purity.		Fibre % Cane.	
	% of B. 34104.	No. of Comparisons.	% of B. 34104.	No. of Comparisons.	% of B. 34104.	No. of Comparisons.
D. 14/34	104.61	54	100.79	54	95.68	33
D. 49/41	102.80	24	99.71	24	98.86	14
D. 142/41	109.53	22	101.41	22	113.65	9
D. 145/41	118.00	5	101.42	5	100.88	3
D. 149/41	121.16	3	103.02	3	87.82	2
D. 158/41	107.33	12	99.51	12	107.34	3
B. 37161	100.47	22	100.08	22	91.21	18
B. 40102	98.53	9	96.41	9	101.99	5
B. 40105	104.19	9	98.52	9	104.41	2
B. 41211	93.79	8	97.08	8	125.70	2
B. 41227	104.39	12	99.55	12	86.20	3
B. 44165	109.99	1	102.01	1	—	—
Co. 419	98.73	9	97.53	9	99.51	2
Co. 421	98.18	42	98.17	42	104.46	20
B. 34104	**100.00**	—	**100.00**	—	**100.00**	—

Most of the varieties appearing in the foregoing tables have already been discussed in detail and it is only necessary to call attention to the promise of D. 158/41 in the three crop Section and of B. 41227 in the two crop Section of Table VI. The performance of the latter has been phenomenal and it is rare to find a cane for which as many as 12 comparisons are available, outyielding the standard by 70%. Table VII indicates that the varieties D. 142/41 and D. 149/41 are excellent juice canes. B. 41227 may be regarded as satisfactory in this respect.

Planting recommendations to estates for 1950 are dictated to some extent by the nursery material which is available. As has been indicated in the notes on individual varieties, all estates in British Guiana have received supplies of the following canes:

B. 37161 (B. 3365 x B. 603)
D. 49/41 (D. 338/33 x Co. 213)
D. 142/41 (B. 34104 x Co. 213)
B. 41227 (B. 35207 x P.O.J. 2878)

In addition the distribution of D. 158/41 has been commenced and the majority of estates have small amounts of B. 4098.

In the light of the variety trial results it seems reasonably certain that B. 41227 will prove superior to the current standard commercial cane of the Colony B. 34104. Only relatively few estates, however, will be in a position to undertake large scale planting of the former this year and it is recommended that B. 41227 should be multiplied rapidly so that it may take its place in extensive commercial trials as quickly as possible. Estates should aim at having at least 25% of their acreage to be planted in this cane which in the meantime will continue to be tested experimentally.

The variety B. 37161 (distribution of which was commenced in 1947) has proved itself at least the equal of B. 34104 in experiments and the results of the first fields of this cane to be reaped on estates tend to confirm this estimate. It can be recommended for use as an alternative to B. 34104 in those areas where the latter is in danger of being planted exclusively and in which material of B. 41227 is not yet available. The planting of small areas of D. 49/41 may be advised on similar grounds, but it is expected that B. 41227 will be able to outyield both of these varieties.

Recommendations concerning D. 142/41 are based on its performance as set out in the note on this variety. It is not considered likely to equal B. 41227 in yield but it has usually proved superior to B. 34104 and its rich juice and good field characteristics are likely to recommend it both to the factory and to the cane cutters. Estates should aim at multiplying this variety to the extent where it can constitute 5% of their planting programme.

The testing of the varieties D. 158/41 and B. 4098 is not sufficiently advanced for recommendations concerning them to be made. However, they should be multiplied by estates pending further experimental results.

MANURIAL TRIALS.

All manurial trials undertaken by the station during 1949 involved the use of phosphatic manures. These were applied either in graded dressings in the presence of a constant basic application of Sulphate of Ammonia, or in combination with different levels of nitrogenous fertilizers and lime. For convenience in discussion the trials are grouped as follows :

A—Trials with Graded Dressings of Phosphatic Manures with Nitrogen at Constant Level ;

B—Trials with Phosphatic Manures and Liming Materials ;

C—Trials with Graded Dressings of Phosphatic Manures in combination with various levels of Nitrogenous Manures and Liming Materials.

D—Summary.

SUB-SECTION A.—PHOSPHATIC MANURES.

(A1 — A2) PHOSPHATIC MANURING ON FLOOD-FALLOWED RIVERSIDE CLAY.

(A3 — A4) „ „ „ „ „ BERBICE FRONTLAND CLAY.

(A5) „ „ „ TRANSITION PEGASSY CLAY.

Fields 7 F., Farm; 11 T.L. West, Port Mourant; 25, Lot 22A., Rose Hall (Expt. A); 46 DeK., Uitvlugt.

The results of this group of four trials may be summarized by saying that in no case did phosphate application have a significant effect upon yield. The trial in Uitvlugt 46 DeK. is of interest in that it involved a comparison between Calcium superphosphate and Silico-phosphate, a new type of phosphatic fertilizer being manufactured in the United Kingdom by roasting together ground rock phosphate, soda and sand; it contains approximately 33% P_2O_5 in a readily available form. The results of this trial do not indicate any difference in effectiveness between the two fertilizers.

TABLE I.—**Effect of Phosphatic Manures on Flood-fallowed Riverside Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Farm, Field 7 F. Diamond 10.		
	Plants.	1st Ratoons.	Total for 2 Crops.
No Phosphate,	43.46	24.82	68.28
Superphosphate, 6 cwt.	44.80	22.40*	67.20
Rock Phosphate, 6 ,,	46.05	29.74*	75.79
Mean :	44.77	25.65	

Differences not Statistically Significant.

Basic application of 2 cwt. Ammonium Sulphate and 10 cwt. Limestone per Acre, applied to plants and 3 cwt. Ammonium Sulphate to 1st Ratoons.

* Residual effect from plant cane application.

TABLE II.—**Effect of Phosphatic Manures on Flood-fallowed Berbice Frontland Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Port Mourant, Field 11 T.L., West. B. 34104, Plants.
No Phosphate,	52.81
Superphosphate, 2 Cwt.	51.72
,, 4 ,,	48.43
,, 6 ,,	50.95
Double ,, 1 ,,	55.37
,, ,, 2 ,,	52.72
Mean :	52.00

Differences not Statistically Significant.

Basic application of 4 Cwt. Ammonium Sulphate per Acre.

TABLE III.—**Effect of a Phosphatic Manure on Flood-fallowed Berbice Frontland Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Rose Hall, Field 25, Lot 22 A. B. 34104, Plants.
Experiment "A."	
Basic Slag, 6 Cwt.	44.80
„ „ 12 „	51.74
„ „ 18 „	44.91
Mean :	47.15

Differences not Statistically Significant.

Basic application of 2 Cwt. Ammonium Sulphate per Acre.

TABLE IV.—**Effect of Phosphatic Manures on Transition Pegassy Clay.**

Treatments per acre.	Mean Yields in Tons Cane per Acre. Uitvlugt, Field 46 De K. B. 34104, Plants.
Silicophosphate, 2.67 Cwt.	31.54
„ 5.34 „	31.20
Superphosphate, 4 Cwt.	32.84
„ 8 „	32.89
Mean :	32.12

Differences not Statistically Significant.

Basic application of 6 cwt. Ammonium Sulphate per Acre.

SUB-SECTION B.—PHOSPHATIC MANURES AND LIMING MATERIALS.

(B1 — B2) PHOSPHATIC MANURING AND LIMING MATERIALS ON INTERMEDIATE PEGASSY CLAY.

(B3 — B4) „ „ „ „ „ ON PEGASSY CLAY.

Fields 108 G.D., Diamond (South & North End).

The results as plants of these two trials designed to test the effect of the proprietary compound 'Limax' were reported in Bulletin 17. Again, as first ratoons, there were no differences in yield between the various fertilizer treatments.

TABLE V.—**Effect of Phosphatic and Liming Materials on Intermediate Pegassy Clay. (South End).**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Diamond, Field 108 G.D. B. 34104.		
	Plants.	1st Ratoons.	Total for 2 Crops.
Limax 10 Cwt.	33.49	34 89*	68.38
Limestone 10 ,,	32.18	32.11*	64.29
Limestone 10 ,, and Rock Phosphate 6 ,,	33.17	35.40*	68.57
Mean :	32.95	34.13	

Differences not Statistically Significant.

Basic application of 4 cwt. Ammonium Sulphate per acre applied to plants and 3 cwt. to 1st Ratoons.

*Residual effect from plant cane application.

TABLE VI.—**Effect of Phosphatic and Liming Materials on Pegassy Clay. (North End).**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Diamond, Field 108 G.D. Co. 419.		
	Plants.	1st Ratoons.	Total for 2 Crops.
Limax 20 Cwt.	49.52	39.44*	88.96
Limestone 20 ,,	47.51	36.28*	83.79
Limestone 20 ,, and Rock Phosphate 6 ,,	50.91	40.08*	90.99
Mean :	49.31	38.60	

Differences not Statistically Significant.

Basic application of 4 cwt. Ammonium Sulphate per acre applied to plants and 3 cwt. to 1st Ratoons.

*Residual effect from plant cane application.

SUB-SECTION C.—PHOSPHATIC AND NITROGENOUS MANURES WITH LIMING MATERIALS.

(C1) Phosphatic and Nitrogenous Manuring on Berbice Frontland Clay.

(C2) „ „ „ „ with Liming Materials on Pegassy Clay.

(C3 — C4) „ „ „ „ „ „ Materials on Flood-Fallowed Berbice Frontland Clay.

(C5 — C8) „ „ Nitrogenous Manuring with Liming Materials on Transition Pegassy Clay.

Fields 25, Lot 22A (Expt. B) Rose Hall; 1 Ab., Blairmont; 74 B.L., Blairmont; 70 E. Tuschen.

This group of seven trials includes one on Berbice frontland clay in which graded dressings of basic slag were used in combination with different levels of Sulphate of Ammonia (Rose Hall, Field 25, Lot 22A), two 3x3x3 factorial trials at Blairmont involving high Nitrogen, high Phosphate formulation with three levels of lime, and a group of four trials of high Nitrogen, high Phosphate type established in co-operation with Mr. L. A. Forte, Field Experimentalist Pln. De Kinderen, on a transitional pegassy clay on that estate.

The experiment at Rose Hall—a 3x3 Latin Square—showed considerable differences between treatment means, but this may have been due to chance. Inadequate replication probably explains the high degree of experimental error encountered.

The trial in 1 Abary (Blairmont) was of 3x3x3 factorial design and involved three levels of Sulphate of Ammonia, Superphosphate and Lime. Here again considerable differences between treatment means were apparent, but could not be shown to be significant.

In 74 B.L. the trial was of similar design to 1 Abary and was reaped as first ratoons in 1949. Both the Sulphate of Ammonia and Superphosphate dressings had been reapplied to the ratoons but the Limestone treatment was confined to a single application on the plants. Significant responses were obtained both to Nitrogen and phosphate fertilization, the results from the former being particularly striking. Sulphate of Ammonia applied at the rate of 4 cwt/acre resulted in a significant increase over the control, but was itself significantly outyielded by the 10 cwt/acre treatment. As can be seen from the table the increments were large, 13.15 and 10.77 tons respectively. Response to phosphate was less marked, but both rates of application resulted in significant increments over the control although they did not differ from one another. No interaction between nitrogenous and phosphatic fertilizers occurred.

The object of this group of four trials (70 E, Tuschen) was to test the effect of high Phosphate, high Nitrogen fertilization using basic slag as the phosphatic manure. To this end four 4x4 factorial trials were established with dressings ranging from 0—18 cwt/acre of basic slag and from 4—10 cwt/acre Sulphate of Ammonia. Two of the trials were limed at the rate of 1 ton/acre and two at the rate of 3 tons/acre. Statistical analysis was carried out for all four trials individually and for their combined results.

Significant response to fertilizer treatment was obtained in experiments B, C and D and also in the analysis of the combined results. In experiment B, basic slag at the 18 cwt/acre level was significantly superior to the control and to the 12 cwt/acre treatment but not to 6 cwt/acre treatment. In experiment C, sulphate of ammonia at 6 and 10 cwt/acre proved significantly superior to the lowest dressing (4 cwt/acre) but did not differ significantly from the 8 cwt/acre application. Basic slag application also elicited a response in this trial, 6 cwt/acre of this fertilizer resulting in significantly increasing yield as compared to the No phosphate treatment. In experiment D the only effect of the fertilizer treatments was a depression of yield in the heaviest sulphate of ammonia treatment—10 cwt/acre—which was significantly inferior to the 8 cwt/acre treatment.

TABLE VII.—**Effect of a Phosphatic Manure and Ammonium Sulphate on Berbice Frontland Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre. Rose Hall, Field 25, Lot 22 A. B. 34104, Plants.
Experiment "B."	
2 Cwt. Amm. Sulph., 4 „ „ „ and 6 cwt. Basic Slag.	45.54
8 „ „ „ „ 12 „ „ „	52.48
	48.14
Mean :	48.72
Differences not Statistically Significant.	

TABLE VIII.—**Results of a 3 x 3 x 3 Factorial Experiment on Pegassy Clay.**

Treatments per Acre.	Mean Yields in Tons Cane per Acre.
	Blairmont, Field 1 Ab.
	Co. 421, Plants.
Ammonium Sulphate, 0 Cwt.	57.93
" " 5 "	65.86
" " 10 "	61.73
Mean :	61.84
Sig. Diff., 20 : 1 :	—
Superphosphate, 0 Cwt.	58.76
" 6 "	63.56
" 12 "	63.20
Mean :	61.84
Sig. Diff., 20 : 1 :	—
Limestone, 0 Tons.	65.42
" 3.5 "	56.93
" 7.0 "	63.16
Mean :	61.84
Sig. Diff., 20 : 1 :	—

TABLE IX.—**Results of a 3 x 3 x 3 Factorial Experiment on Flood-Fallowed Berbice Frontland Clay.**

Treatments per Acre.	Mean Yield in Tons Cane per Acre.	
	Blairmont, Field 74 B.L.	
	Diamond 10.	
	Plants.	1st Ratoons.
Ammonium Sulphate, 0 Cwt.	45.56	33.99
,, ,, 4 ,,	44.86	47.14
,, ,, 10 ,,	51.18	57.91
Mean :	47.20	46.35
Sig. Diff., 20 : 1 :	5.09	2.80
Superphosphate, 0 Cwt.	47.57	44.03
,, 6 ,,	48.40	47.44
,, 12 ,,	45.63	47.57
Mean :	47.20	46.35
Sig. Diff., 20 : 1 :	—	2.80
Limestone, 0 Tons.	43.67	45.61
,, 3.5 ,,	48.02	46.12*
,, 7.0 ,,	49.92	47.31*
Mean :	47.20	46.35
Sig. Diff., 20 : 1 :	5.09	—

*Residual effect from Plant Cane application.

TABLE X.—**Results of Four Manurial Experiments on Transition Pegassy Clay.**

Treatments per Acre.	Mean Yields in Tons Cane Per Acre. Tuschen, Field 70 E. Plants.				
	B. 34104.		Co. 419.		B. 34104 and Co. 419.
	Experiment A	Experiment B	Experiment C	Experiment D	Combined Results of Four Experiments.
Ammonium Sulphate, 4 Cwt.	46.18	43.55	40.75	45.30	44.87
„ „ 6 „	46.58	46.36	47.58	45.84	46.47
„ „ 8 „	48.36	40.70	43.05	47.61	44.53
„ „ 10 „	46.37	40.87	46.59	41.99	43.62
Mean:	46.87	42.87	44.49	45.19	44.87
Sig. Diff., 20:1:	—	—	5.45	5.11	—
Basic Slag, 0 Cwt.	45.51	38.15	40.45	43.45	41.83
„ „ 6 „	48.28	42.84	48.80	46.77	45.56
„ „ 12 „	47.17	40.66	44.40	46.93	43.91
„ „ 18 „	46.53	49.84	44.32	43.60	48.18
Mean:	46.87	42.87	44.49	45.19	44.87
Sig. Diff., 20:1:	—	8.13	5.45	—	4.10
Ground Limestone, 1 Ton.	—	42.87	44.49	—	42.87
„ „ 3 Tons.	46.87	—	—	45.19	46.87
Mean:	46.87	42.87	44.49	45.19	44.87
Sig. Diff., 20:1:	—	—	—	—	—

SUB-SECTION D.—SUMMARY.

Results of the 1949 series of Manurial trials indicate

(1) Response to phosphatic fertilization of plant canes on coastal and riverside clays is uncertain;

(2) The residual effect on ratoons of phosphate application to plants is negligible ;

(3) Applications of basic slag to plant canes on transitional pegassy clay sometimes increase yield, but the results are inconsistent;

(4) The application of superphosphate to ratoons may elicit response. In the only experiment in which phosphate was applied to first ratoons a significant increment in yield resulted from applications of 6 and 12 cwt/acre calcium superphosphate as compared to the No phosphate treatment. There was no significant difference in yield between the two phosphate treatments ;

(5) Under British Guiana conditions, High Nitrogen, High Phosphate manuring does not result in the striking yield increments which have been reported from Trinidad and elsewhere in the Caribbean. No interaction between these two types of fertilizers has so far been observed to occur locally;

(6) There appears to be no advantage in the use of silico-phosphate as compared to calcium superphosphate as a phosphatic manure. The proprietary compound "Limax" exercises no effect upon yield under local conditions ;

(7) Ratoon canes may respond to Sulphate of Ammonia dressings in excess of the prescribed standard of 4 cwt/acre. In one experiment a marked and significant response was obtained to a dressing of 10 cwt/acre.

CULTIVATION TRIALS.

SUB-SECTION E.—CULTIVATION TRIALS.

(E1) Field 71 La P., Ogle.

The only cultivation trial reaped during 1949 was the Spacing Trial at 71 La P. Ogle which was harvested as second ratoons. There was no significant difference between treatments, but the tendency for the closer spacings (4.5 and 3 ft.) to outyield the 6 ft. spacing was still apparent. Over three crops the increment over the latter amounted to 11.53 and 12.62 tons cane/acre for the 4.5 ft. and 3.0 ft. spacings respectively. The effect of the three different seed rates on the ratoon yields was negligible.

TABLE I.—**Results of a Cultivation Trial on Flood-fallowed Frontland Clay.**

Treatments.	Tons Cane per Acre. Field 71 La P., Ogle. 2nd Ratoons, D. 14/34.			Mean Yields for Rows and Spacing.	Sig. Diff., 20 : 1 :	Tons Cane per Acre. Total for 3 Crops.			Mean Yields for Rows and Spacing.
	A 30 Tops in Row.	B 45 Tops in Row.	C 60 Tops in Row.			A 30 Tops in Row.	B 45 Tops in Row.	C 60 Tops in Row.	
6 Rows, 6.0 ft. Spacing	46.09	43.12	47.80	45.67	Nil	129.42	131.48	134.33	131.74
8 „ 4.5 „ „	52.22	52.54	51.43	52.06		145.35	142.13	142.34	143.27
12 „ 3.0 „ „	50.29	51.21	53.52	51.67		146.59	144.12	142.37	144.36
Sig. Diff., 20 : 1 :	Nil								
Mean Yields for No. of Tops.	49.53	48.96	50.92			140.45	139.24	139.68	
Sig. Diff., 20 : 1 :	Nil								

SUB-SECTION F.—TRIALS WITH ORGANO-MERCURIAL COMPOUNDS FOR PREPLANTING TREATMENT OF CUTTINGS.

(F1 — F2) Experiments on Flood-Fallowed Frontland Clay.
(F3) „ „ Transition Pegassy Clay.

Fields 8 E., Sophia; 2E., Sophia; 70E., Tuschen.

The results of these trials with organo-mercurial fungicidal dips are presented below. The object of the trial in Field 8 E. Sophia was to determine whether the use of the compound 'Ateran' would improve germination and whether this improvement could be used to effect an economy in planting material. The trial in 2 E. Sophia aimed at comparing the compound Ateran with Abavit S. and the effect of both as compared to soaking setts in water. The trial in Tuschen 70 E. was designed to test the effect of Ateran dipping on three different varieties. In every case germination count results are tabulated along with yields.

Table I.—**Results of a Germination Experiment on Flood-fallowed Frontland Clay.**

Treatments.	Sophia, Field 8 East. D. 142/41, Plants. Mean No. of Primary Shoots per plot at 6½ weeks.	Mean yields in Tons Cane Per Acre.
Single Tops No Ateran	104	40.31
Double „ „ „	215	35.69
Single Tops Ateran	234	40.88
Double „ „	461	37.44
Mean:		38.58

Differences not Statistically Significant.

TABLE II.—**Results of a Germination Experiment on Flood-fallowed Frontland Clay.**

Treatments.	Sophia, Field 2 East. D. 14/34, Plants. Mean No. of Primary Shoots per plot at 5 weeks.	Mean yields in Tons Cane Per Acre.
Control	301	44.43
Dipped in Ateran	312	38.89
„ „ Abavit	309	39.31
Water Soaked Overnight	248	40.07
„ „ „ and Dipped in Ateran	298	33.03
Mean :		39.15

Differences not Statistically Significant.

TABLE III.—**Results of a Germination Experiment on Transition Pegassy Clay.**

Variety.	Tuschen, Field 70 E. Plants. Ateran. Mean No. of Primary shoots/plot at 3 weeks.	Ateran. Mean Yields in Tons Cane per Acre.	No Ateran. Mean No. of Primary shoots/plot at 3 weeks.	No Ateran. Mean Yields in Tons Cane per Acre.
B. 37161	121.0	34.00	100.4	33.36
D. 26/39	114.6	34.81	102.6	32.58
B. 34104	140.0	33.94	129.6	32.66
Mean :		34.25		32.87

Differences not Statistically Significant.

SUB-SECTION G.—SUMMARY.

The results of the three trials show that in no case has preplanting treatment with organo-mercurials had any measurable effect upon yield. This is true even where (as in 8 E. Sophia) the treatment has exercised a marked beneficial effect upon germination. Hence it appears unlikely that the technique will prove useful under British Guiana conditions.

	Estate	P.O.J. 2878	D. 14/34	Co. 421	B. 34104	Co. 419	Diamond 10	D. 166/34	B
Berbice.	Skeldon	89.90	766.10	157.10	2,056.30	904.70	—	—	
	Port Mourant	93.40	215.10	658.30	3,784.60	14.50	—	—	
	Albion	9.60	1,220.30	194.80	3,756.00	50.20	—	—	
	Rose Hall	100.30	1,063.20	561.00	3,774.70	32.80	16.60	2.80	
	Lochaber	286.00	4.00	30.00	86.00	11.00	18.00	—	
	Providence 'B'	—	380.20	949.90	137.30	82.00	65.00	8.00	
	Blairmont	1.00	784.80	931.30	270.10	66.00	109.00	4.00	
	Bath	—	360.50	907.10	171.40	412.00	—	—	
	Total Dutch	580.20	4,794.20	4,389.50	14,036.40	1,573.20	208.60	14.80	
	Total English	609.79	5,038.70	4,613.36	14,752.26	1,653.44	219.24	15.55	
	%	2.22	18.31	16.77	53.61	6.01	.79	.06	
East Demerara.	Enmore	241.00	465.70	124.00	2,711.30	—	—	—	
	Lusignan	—	940.67	88.00	1,968.33	9.00	—	—	
	L.B.I.	27.00	1,496.70	71.00	975.20	353.50	221.50	—	
	Ogle	—	639.40	101.20	1,172.20	—	238.10	—	
	Total Dutch	268.00	3,542.47	384.20	6,827.03	362.50	459.60	—	
	Total English	281.67	3,723.14	403.79	7,175.21	380.99	483.04	—	
	%	2.16	28.58	3.10	55.08	2.92	3.71	—	
Demerara River Banks.	Ruimveldt	—	150.50	—	452.50	4.50	59.00	—	
	Houston	—	113.37	—	480.36	—	336.27	—	
	Diamond	—	1,079.50	—	4,759.50	176.00	344.50	—	
	Wales	—	242.00	447.00	2,778.70	177.00	417.00	—	
	Versailles	79.10	469.10	226.30	1,201.30	6.30	170.50	4.70	
	Total Dutch	79.10	2,054.47	673.30	9,672.36	363.80	1,327.27	4.70	
	Total English	83.13	2,159.25	707.64	10,165.65	382.35	1,394.96	4.94	
	%	.52	13.60	4.46	64.02	2.41	8.78	.03	
West Demerara.	Leonora	—	1,351.40	—	2,467.50	261.60	—	—	
	Uitvlugt	70.00	1,153.80	—	4,261.25	324.85	—	—	
	Total Dutch	70.00	2,505.20	—	6,728.75	586.45	—	—	
	Total English	73.57	2,632.97	—	7,071.92	616.36	—	—	
	%	.69	24.74	—	66.46	5.79	—	—	
	Colony English	1,048.16	13,554.06	5,724.79	39,165.04	3,033.14	2,097.24	20.49	
	%	1.56	20.21	8.54	58.40	4.52	3.13	.03	

TABLE I.—Estate Acreage of Varieties for the Year 1950.

D. 200/36	Mixed	D. 21/40	Diamond 201	D. 25/38	Diamond 9	D. 26/39	New Seedlings	B. 37161	D.
10.00	5.90	—	—	35.00	—	—	—	87.60	
2.70	17.30	—	—	12.30	—	—	—	3.10	
32.00	2.00	.50	—	15.70	—	—	—	33.30	
—	1.00	—	—	—	—	—	—	48.40	
—	—	—	—	—	—	—	—	—	
29.50	—	—	—	—	—	—	—	—	
19.00	18.00	.75	.25	58.00	—	—	—	33.50	
—	—	—	—	3.50	—	—	—	—	
93.20	44.20	1.25	.25	124.50	—	—	—	205.90	
97.95	46.45	1.31	.26	130.85	—	—	—	216.40	
.36	.17	—	—	.48	—	—	—	.79	
11.00	—	—	—	—	—	—	—	—	
25.00	—	—	—	—	—	—	—	—	
—	33.00	—	—	—	—	—	10.00	64.30	
78.00	—	—	—	—	—	—	3.20	39.20	
114.00	33.00	—	—	—	—	—	13.20	103.50	
119.81	34.68	—	—	—	—	—	13.87	108.78	
.92	.27	—	—	—	—	—	.11	.83	
—	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	
195.00	—	—	99.00	—	20.00	3.00	—	499.50	
.50	—	4.50	—	.50	—	—	—	—	
17.40	6.30	—	7.00	—	—	—	—	4.00	
212.90	6.30	4.50	106.00	.50	20.00	3.00	—	503.50	
223.76	6.62	4.73	111.41	.53	21.02	3.15	—	529.18	
1.41	.04	.03	.70	—	.13	.02	—	3.33	
—	—	—	—	—	—	22.00	—	57.70	
54.20	35.25	—	—	—	—	10.25	10.45	9.75	
54.20	35.25	—	—	—	—	32.25	10.45	67.45	
56.96	37.05	—	—	—	—	33.89	10.98	70.89	
.54	.35	—	—	—	—	.32	.10	.67	
498.48	124.80	6.04	111.67	131.38	21.02	37.04	24.85	925.25	
.74	.19	.01	.17	.20	.03	.06	.04	1.38	

B. 41227	B. 4098	D. 158/41	B. 41211	B. 37172	B. 40102	Total
—	1.00	—	—	—	—	4,113.60
23.10	—	—	—	.10	.10	4,826.80
5.30	.60	—	7.00	2.60	—	5,335.40
39.50	6.80	.30	—	—	—	5,666.60
—	—	—	—	—	—	435.00
—	—	—	—	—	—	1,651.90
.10	—	.25	—	—	—	2,296.40
—	—	—	—	—	—	1,854.50
68.00	8.40	.55	7.00	2.70	.10	26,180.20
71.47	8.83	.58	7.36	2.84	.11	27,515.39
.26	.03	—	0.3	.01	—	100.00
—	—	—	—	—	—	3,553.00
—	—	—	—	—	—	3,031.00
74.20	—	—	—	—	68.80	3,505.70
3.00	—	1.50	—	—	—	2,304.90
77.20	—	1.50	—	—	68.80	12,394.60
81.14	—	1.58	—	—	72.31	13,026.72
.62	—	.01	—	—	.56	100.00
—	—	—	—	—	—	666.50
—	—	—	—	—	—	930.00
27.00	—	—	—	—	—	7,209.00
—	—	—	—	—	—	4,067.20
1.60	—	.20	—	—	—	2,236.00
28.60	—	.20	—	—	—	15,108.70
30.05	—	.21	—	—	—	15,879.24
.20	—	—	—	—	—	100.00
—	—	—	—	—	—	4,169.70
—	—	—	—	—	—	5,954.85
—	—	—	—	—	—	10,124.55
—	—	—	—	—	—	10,640.90
—	—	—	—	—	—	100.00
182.66	8.83	2.37	7.36	2.84	72.42	67,062.25
.27	.01	—	.01	—	.11	100.00

THE VARIETY AND FERTILIZER POSITION OF THE SUGAR INDUSTRY, XV.

BY

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VARIETAL COMPOSITION OF THE 1950 HARVESTS.

The tables summarising the variety position for 1950 have been prepared along the same lines as those published in Bulletin 17. The data they contain has been compiled from returns kindly supplied by the Sugar Estates which grow approximately 98% of the colony's canes. Table I shows the varietal position on an estate basis while Table II summarises this information for the colony as a whole. Table III shows the acreage occupied by the varieties which make up the 'other canes' category in Table II, while Table IV indicates the trend in varietal planting over the last 8 years.

TABLE I (facing this page—inset).

TABLE II.—**Percentage Distribution of the Varieties to be Reaped in 1950.**

Variety.	Total English Acres in the Colony.		Percentage.			
			in West Demerara.	along Demerara River Banks.	in East Demerara.	in Berbice.
B. 34104	39,165.04	(58.4)	18.0	26.0	18.3	37.7
D. 14/34	13,554.06	(20.2)	19.4	15.9	27.5	37.2
Co. 421	5,724.79	(8.5)	—	12.4	7.0	80.6
Co. 419	3,033.14	(4.5)	20.3	12.6	12.6	54.5
Diamond 10	2,097.24	(3.1)	—	66.5	23.0	10.5
P.O.J. 2878	1,048.16	(1.6)	7.0	7.9	26.9	58.2
B. 37161	925.25	(1.4)	7.6	57.2	11.8	23.4
D. 200/36	498.48	(0.7)	11.4	44.9	24.1	19.6
B. 41227	182.66	(0.3)	—	16.5	44.4	39.1
D. 142/41	159.75	(0.2)	22.7	24.5	34.9	17.9
Other Canes	673.68	(1.1)	12.1	24.4	31.7	31.8
	67,062.25	(100.0%)				

TABLE III.—Acreages of the Varieties Constituting "Other Canes".

Variety.	English Acres.		Variety.	English Acres.		Variety.	English Acres.	
	1949	1950		1949	1950		1949	1950
D. 49/30	45	—	D. 49/41	9	68	B. 4098	—	9
D. 419/33	12	—	D. 158/41	—	2	B. 40102	—	72
D. 166/34	67	20	Diamond 9	—	21	B. 40105	—	35
D. 25/38	147	131	,, 201	283	112	B. 41211	—	7
D. 26/39	—	37	S.C. 12/4	91	—	New Seedlings	—	150
D. 21/40	8	6	B. 37172	—	3			

TABLE IV.—Comparison of Areas Under Various Canes in British Guiana, 1943-1950.

Variety.	Per Cent of Total Areas in the Colony.							
	1943	1944	1945	1946	1947	1948	1949	1950
Diamond 10	26.5	25.5	26.7	25.4	21.6	14.4	8.4	3.1
P.O.J. 2878	68.0	65.1	54.8	40.4	27.6	13.6	6.9	1.6
D. 166/34	1.6	2.2	2.2	1.6	1.0	0.5	—	—
Co. 419	1.3	3.0	4.9	6.5	7.7	8.2	6.8	4.5
Co. 421	—	1.6	6.3	15.1	19.4	19.3	14.2	8.5
D. 14/34	—	—	2.7	6.4	11.3	17.4	20.6	20.2
B. 34104	—	—	—	1.6	7.6	22.6	39.8	58.4
D. 200/36	—	—	—	—	1.5	1.9	1.7	0.7
B. 37161	—	—	—	—	—	—	—	1.4
B. 41227	—	—	—	—	—	—	—	0.3
D. 142/41	—	—	—	—	—	—	—	0.2
Other Canes	2.6	2.6	2.4	3.0	2.3	2.1	1.6	1.1

The data presented above show that the most significant change in the variety position relative to 1949, has been the continued advance of B.34104. The area occupied by this cane has increased by approximately 13,000 acres and it now constitutes 58.4% of the total area planted. It is almost certain to cover an even larger acreage in 1951 and is likely to be the dominant variety in British Guiana for some years to come.

D.14/34 has maintained its position and occupies 20.2% of the colony's acreage. However it is significant that for the first time since its introduction this variety has made no advance and it is clear that it is being challenged by some of the newer seedlings.

The varieties Co. 421, Co. 419, Diamond 10 and P.O.J. 2878 are fast disappearing although Co. 421, largely due to the influence of the Blairmont group of estates still occupies an important position in Berbice. Diamond 10 and P.O.J. 2878 together occupy only 4.7% of the planted area.

A significant feature of the tables is the occurrence in them of a number of new seedlings. Thus B.37161 which was grown on only 79 acres in 1949 occupies no less than 925.25 acres in 1950. It has been extensively planted on the Diamond group of estates. Also listed in Table II are the varieties B.41227 (182.66 acres) and D.142/41 (159.75 acres) while in Table III, mention is made of the varieties D.49/41, B.4098, B.40102 and B.40105. It is clear that the supremacy of B.34104 and D.14/34 will not remain long unchallenged and it is likely that in 1951 considerable increases in the acreage under such canes as B.41227 and D.142/41 may be anticipated.

It is encouraging to be able to record a continuation of the gradual upward trend in the total acreage planted. This has increased by 1,662.3 acres since 1949.

CYCLE AGE OF THE CROPS.

Table V shows that the planting position remains normal and that there has been an increase in the percentage area under plants and first ratoons at the expense of the acreage occupied by second and third ratoons.

TABLE V.—Cycle Age of the Crops, 1947-1950.

Category.	Percentages in				Category.	Percentages in			
	1947	1948	1949	1950		1947	1948	1949	1950
Plants	28.4	31.3	31.2	33.1	3rd Ratoons	11.8	14.3	15.2	12.6
1st Ratoons	27.0	26.1	26.5	27.4	4th Ratoons	7.0	2.5	2.0	3.1
2nd Ratoons	22.3	24.5	24.8	23.3	5th Ratoons	3.5	1.3	0.3	0.5

COMMERCIAL YIELDS.

The Tables showing the yields of varieties under estate conditions have again been drawn up on a regional basis. The estates comprising the four categories are as follows :—

East Coast Demerara (Table VI A)—Plns. Ogle, La Bonne Intention, Lusignan and Enmore;

West Coast Demerara (Table VI B)—Plns. Uitvlugt *cum annexis* and Leonora;

Demerara River Banks (Table VI C)—Plns. Diamond *cum annexis* (including Peter's Hall, Providence and Farm), Ruimveldt, Houston, Versailles. Schoon Ord and Wales;

Berbice (Table VI D)—Plns. Blairmont, Bath, Providence, Rose Hall, Albion, Port Mourant and Skeldon.

The data contained in the Tables VI A, B, C and D is summarised for the whole Colony in Table VI E. Undue importance should not be attached to the returns from small acreages and an arbitrary standard of 100 acres has been selected as the minimum for which performance data can be considered at all reliable.

TABLE VI a.—**Weighted Mean Commercial Yields in East Demerara, 1949.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
D. 14/34	966.4	13.20	81.13	—	3.96
Co. 419	188.0	12.69	79.98	—	3.93
B. 34104	1874.6	12.67	80.30	—	3.66
		Under 100	*Acres.*		
D. 49/41	1.9	12.83	81.23	—	5.79
B. 40102	3.2	14.18	82.95	—	5.23
B. 37161	8.5	12.93	82.11	—	4.94
D. 200/36	50.2	13.57	81.36	—	4.70
B. 40105	1.5	13.28	81.74	—	4.67
B. 41227	0.5	12.97	81.06	—	4.00
D. 40/41	9.0	12.84	81.14	—	3.89
Co. 421	71.0	12.64	78.80	—	3.58
Diamond 10	81.6	12.39	80.40	—	3.33
		First 100 Acres	*Ratoons. and over.*		
B. 34104	1195.9	13.02	81.12	—	3.53
D. 14/34	748.4	13.22	81.31	—	3.38
Diamond 10	310.1	13.59	81.69	—	3.25
Co. 419	173.7	13.42	81.35	—	3.19
P.O.J. 2878	258.0	12.89	80.36	—	2.64
		Under 100	*Acres.*		
D. 200/36	4.2	13.83	80.87	—	3.33
Mixed	34.8	11.98	80.12	—	2.32
		Second 100 Acres	*Ratoons. and over.*		
Diamond 10	174.6	13.91	82.67	—	2.99
B. 34104	458.5	12.64	80.79	—	2.97
D. 14/34	866.5	13.49	81.57	—	2.88
D. 200/36	147.3	13.00	81.81	—	2.82
Co. 421	797.7	12.63	80.13	—	2.72
P.O.J. 2878	615.2	12.75	79.79	—	2.45
		Under 100	*Acres.*		
Co. 419	78.7	13.53	81.04	—	2.79
		Third 100 Acres	*Ratoons. and over.*		
Diamond 10	249.6	13.85	81.78	—	2.72
B. 34104	105.5	13.56	81.76	—	2.65
P.O.J. 2878	589.0	12.88	79.65	—	2.41
D. 14/34	648.7	13.34	81.29	—	2.38
Co. 421	689.2	12.47	80.19	—	2.37
		Under 100	*Acres.*		
Co. 419	7.2	13.84	82.38	—	4.03
D. 166/34	18.0	11.84	77.33	—	2.39
D. 200/36	13.5	12.54	79.51	—	2.21

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI b.—**Weighted Mean Commercial Yields in West Demerara, 1949.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes. 100 Acres and over.			
D. 14/34	1,003.80	14.46	83.90	13.86	3.57
B. 34104	1,240.8	13.76	83.68	13.94	3.47
Co. 419	137.5	13.79	80.61	—	2.86
		Under 100 Acres.			
D. 26/39	1.2	16.80	89.82	—	4.80
B. 37161	11.0	12.85	83.12	13.35	4.45
D. 200/36	36.2	13.96	79.56	—	3.62
Mixed	9.5	13.56	81.70	—	1.68
		First Ratoons. 100 Acres and over.			
B. 34104	122.8	13.50	83.01	13.95	3.27
D. 14/34	735.2	14.93	85.39	13.89	3.07
Co. 419	104.5	13.74	82.71	12.30	2.18
P.O.J. 2878	109.0	14.92	83.91	—	2.15
		Under 100 Acres.			
D. 200/36	2.5	13.42	81.38	—	2.00
		Second Ratoons. 100 Acres and over.			
D. 14/34	436.3	14.99	85.48	13.89	3.97
B. 34104	570.2	14.38	84.43	13.95	3.03
Co. 419	444.2	14.92	83.95	12.03	2.84
Diamond 10	195.5	14.76	86.43	13.05	2.78
D. 200/36	260.3	13.82	82.45	12.00	2.50
P.O.J. 2878	244.0	14.17	82.84	14.36	1.98
Co. 421	221.0	14.76	84.91	—	1.82
		Under 100 Acres.			
Mixed	1.0	13.63	82.36	—	2.00
D. 166/34	4.0	13.79	83.58	—	1.25
		Third Ratoons. 100 Acres and over.			
Co. 419	299.6	14.95	83.23	12.30	3.42
D. 14/34	179.3	15.65	86.43	13.89	2.74
		Under 100 Acres.			
D. 200/36	3.00	14.31	84.70	—	3.00
P.O.J. 2878	94.0	14.06	82.86	14.10	2.44
B. 34104	11.0	15.58	85.94	—	1.18

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI c.—**Weighted Mean Commercial Yields along Demerara River Banks, 1949.**

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
D. 14/34	1,011.0	14.82	84.39	14.60	3.87
B. 34104	2,619.0	14.12	84.18	14.48	3.52
Diamond 10	100.2	14.21	82.77	—	3.06
		Under 100	*Acres.*		
P.O.J. 2878	28.7	14.67	82.85	—	3.74
Co. 419	9.0	15.57	86.13	—	3.04
Diamond 201	51.0	13.88	82.90	—	2.94
Co. 421	62.5	13.29	81.88	—	2.89
B. 37161	4.0	13.61	83.00	13.80	2.50
D. 200/36	18.0	15.82	86.00	—	2.39
		First 100 Acres	*Ratoons. and over.*		
Co. 421	155.4	13.72	81.57	—	3.30
B. 34104	2,080.7	14.37	84.51	—	3.08
Co. 419	439.8	14.24	83.42	13.80	2.98
D. 200/36	215.5	15.52	85.32	—	2.95
D. 14/34	115.8	14.43	83.74	—	2.95
Diamond 10	302.7	14.74	85.39	—	2.36
		Under 100	*Acres.*		
Diamond 9	9.0	14.64	87.20	—	4.45
D. 166/34	4.7	14.74	83.31	—	4.12
Diamond 201	52.0	13.77	84.93	—	2.60
S.C. 12/4	30.0	15.83	88.53	—	2.06
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	252.7	14.93	84.17	13.87	2.90
Mixed	142.0	16.01	87.21	—	2.55
Diamond 201	117.0	15.45	85.57	—	2.52
„ 10	1,987.7	15.28	86.49	—	2.48
D. 14/34	159.0	14.87	84.25	—	2.42
Co. 421	301.4	14.06	82.91	13.00	2.25
		Under 100	*Acres.*		
D. 49/30	42.5	15.77	86.40	—	3.39
D. 200/36	99.6	15.98	85.92	—	3.18
S.C. 12/4	47.5	15.95	85.84	—	2.63
D. 21/40	2.5	14.44	82.78	—	2.47
Co. 419	83.0	14.87	83.72	14.32	2.42
D. 25/38	1.8	14.99	82.97	—	2.28
P.O.J. 2878	19.1	13.84	82.17	—	1.80
		Third 100 Acres	*Ratoons. and over.*		
Diamond 10	488.5	14.96	85.30	—	2.27
D. 14/34	122.9	14.26	83.27	—	2.24
Co. 421	565.9	13.69	82.93	—	1.69
		Under 100	*Acres.*		
Diamond 201	48.5	15.22	86.80	—	3.09
„ 9	11.0	14.69	85.40	—	2.91
Co. 419	51.5	14.76	83.97	14.00	2.49
P.O.J. 2878	5.0	15.23	83.47	—	2.38
S.C. 12/4	9.5	15.65	84.60	—	2.21
B. 34104	8.5	14.56	83.02	—	1.53
D. 166/34	15.0	13.46	81.99	—	1.04

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VI d.—Weighted Mean Commercial Yields in Berbice, 1949.

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant Canes.			
		100 Acres and over.			
Co. 421	750.7	12.76	76.13	—	4.34
Co. 419	203.1	13.39	79.14	—	4.25
D. 14/34	580.5	14.05	82.62	—	4.11
B. 34104	4,066.9	14.32	83.61	—	3.86
		Under 100 Acres.			
D. 25/38	1.8	14.39	84.54	—	3.98
D. 200/36	15.0	—	—	—	3.97
		First Ratoons.			
		100 Acres and over.			
B. 34104	2,369.8	13.93	83.42	—	4.02
Co. 421	849.9	13.08	81.08	—	3.82
Co. 419	401.5	14.07	78.86	—	3.39
D. 14/34	1,652.7	13.87	82.62	—	3.16
		Under 100 Acres.			
Mixed	15.6	13.17	81.70	—	5.30
Diamond 10	81.0	—	—	—	4.63
D. 25/38	51.5	12.37	79.07	—	4.10
D. 200/36	27.0	13.74	81.92	—	3.90
P.O.J. 2878	20.9	14.92	84.37	—	2.82
		Second Ratoons.			
		100 Acres and over.			
B. 34104	1,216.6	14.67	84.37	—	3.53
Co. 421	1,390.7	13.22	80.99	—	3.45
Co. 419	619.3	12.79	78.52	—	3.32
D. 14/34	1,187.7	13.74	82.30	—	3.31
Diamond 10	120.2	13.33	80.94	—	2.82
P.O.J. 2878	383.6	14.13	83.12	—	2.78
		Under 100 Acres.			
D. 200/36	34.7	15.71	83.96	—	4.04
Mixed	1.0	14.90	82.30	—	3.70
D. 166/34	8.0	12.37	77.56	—	3.29
D. 25/38	70.0	13.12	82.12	—	3.16
D. 21/40	0.8	12.93	81.02	—	2.34
		Third Ratoons.			
		100 Acres and over.			
D. 200/36	110.5	13.53	82.12	—	3.61
B. 34104	302.2	14.06	83.59	—	3.60
Co. 419	274.9	13.11	80.58	—	3.34
D. 14/34	843.7	13.31	83.01	—	3.14
Co. 421	1,604.0	13.20	81.08	—	3.11
Diamond 10	173.1	15.36	85.45	—	2.61
P.O.J. 2878	1,150.1	14.88	83.88	—	2.57
		Under 100 Acres.			
D. 25/38	26.6	13.37	81.92	—	3.71
D. 166/34	16.0	12.94	77.43	—	3.35
Mixed	1.0	—	—	—	3.13

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

TABLE VIe.—Weighted Mean Commercial Yields Under Estate Conditions, 1949.

Variety.	Acres Harvested.	Crusher Juice. Pol. %	Crusher Juice. Purity.	Fibre % Cane.	Tons 96° Sugar per Acre.*
		Plant 100 Acres	*Canes. and over.*		
Co. 421	884.2	12.79	78.94	—	4.17
D. 200/36	119.4	14.45	82.31	—	3.93
D. 14/34	3,561.6	14.54	83.08	14.51	3.85
Co. 419	537.6	13.28	79.93	—	3.76
B. 34104	9,801.4	13.88	83.14	14.05	3.68
Diamond 10	181.8	13.08	81.29	—	3.16
		Under 100	*Acres.*		
D. 49/41	1.9	12.83	81.23	—	5.79
B. 40102	3.2	14.18	82.95	—	5.23
D. 26/39	1.2	16.80	89.82	—	4.80
B. 40105	1.5	13.28	81.74	—	4.67
B. 41227	0.5	12.97	81.06	—	4.00
D. 25/38	1.8	14.39	84.54	—	3.98
D. 40/41	9.0	12.84	81.14	—	3.89
P.O.J. 2878	28.7	14.67	82.85	—	3.74
B. 37161	23.5	13.01	82.73	13.47	3.51
Diamond 201	51.0	13.88	82.90	—	2.94
Mixed	9.5	13.56	81.70	—	1.68
		First 100 Acres	*Ratoons. and over.*		
Co. 421	1,005.3	13.18	81.16	—	3.74
B. 34104	6,874.4	13.83	83.28	13.95	3.53
D. 14/34	3,252.1	13.94	82.78	13.89	3.14
Co. 419	1,119.5	14.00	81.39	12.67	3.08
D. 200/36	249.2	15.28	84.84	—	3.05
Diamond 10	693.8	14.16	83.54	—	3.02
P.O.J. 2878	387.9	13.57	82.88	—	2.37
		Under 100	*Acres.*		
Diamond 9	9.0	14.64	87.20	—	4.45
D. 166/34	4.7	14.74	83.31	—	4.12
D. 25/38	51.5	12.37	79.07	—	4.10
Mixed	50.4	12.09	80.91	—	3.14
Diamond 201	52.0	13.77	84.93	—	2.60
S.C. 12/4	30.0	15.83	88.53	—	2.06
		Second 100 Acres	*Ratoons. and over.*		
B. 34104	2,498.0	14.18	83.13	13.93	3.26
D. 14/34	2,649.4	13.93	82.70	13.89	3.14
Co. 419	1,225.2	13.75	81.01	12.08	3.05
Co. 421	2,710.8	13.27	81.23	13.00	2.97
D. 200/36	541.9	14.11	82.28	12.00	2.81
Mixed	144.0	15.99	87.14	—	2.59
Diamond 10	2,478.0	14.52	82.77	13.05	2.55
,, 201	117.0	15.45	85.57	—	2.52
P.O.J. 2878	1,261.9	13.22	80.00	14.36	2.45
		Under 100	*Acres.*		
D. 49/30	42.5	15.77	86.40	—	3.39
D. 25/38	71.8	13.17	82.14	—	3.14
S.C. 12/4	47.5	15.95	85.84	—	2.63
D. 21/40	3.3	14.07	82.35	—	2.45
D. 166/34	12.0	12.84	79.75	—	2.23
		Third 100 Acres	*Ratoons. and over.*		
D. 200/36	127.1	13.45	81.90	—	3.45
Co. 419	633.2	13.28	82.13	13.15	3.31
B. 34104	427.2	13.95	83.29	—	3.06
D. 14/34	1,794.6	13.62	82.75	13.89	2.76
Diamond 10	911.2	15.25	83.58	—	2.55
P.O.J. 2878	1,838.1	14.26	82.46	14.10	2.50
Co. 421	2,859.2	12.82	81.40	—	2.21
		Under 100	*Acres.*		
D. 25/38	26.6	13.37	81.92	—	3.71
Mixed	1.0	—	—	—	3.13
Diamond 201	48.5	15.22	86.80	—	3.09
,, 9	11.0	14.69	85.40	—	2.91
D. 166/34	49.0	12.51	78.99	—	2.29
S.C. 12/4	9.5	15.65	84.60	—	2.21

* Undue importance should not be attached to the order of merit when only a small acreage has been harvested.

The performance of the two major commercial canes—B.34104 and D.14/34—as recorded by the Tables can be considered very satisfactory. B.34104 is rather disappointing as plants and is beaten in this cycle by D.14/34 in all four categories. As ratoons however, it has done well and as first ratoons it tops the list in East and West Demerara and in Berbice and is second along the Demerara River Banks. As second ratoons it is first along the Demerara River and in Berbice and second in the remaining two categories while as third ratoons it comes second in the only two areas (Demerara River and Berbice) in which more than 100 acres were reaped. D.14/34 outyielded all competitors as plant canes in three out of the four categories (East and West Demerara and along the Demerara River) and it is also first and second ratoons in West Demerara. As a first ratoon it finished second to B.34104 in East and West Demerara. Thus between them these canes occupied either first or second places in the tables on no fewer than 22 occasions—convincing evidence of their general superiority. As can be seen from the crusher juice analysis figures, the juice quality of both is above average, D.14/34 being perhaps slightly the better in this respect.

A surprising feature of the table VI E is the prominence of Co.421, a cane which, as its declining average shows, has been virtually discarded by the industry. A partial explanation of its success can be had from tables VI A, B, C and D which show that as plants and first ratoons it was reaped in appreciable quantities only in Berbice—the most productive region in the colony. Nevertheless, as shown in table VI D, it is capable of outyielding its competitors on equal terms and the explanation of its declining popularity must therefore lie in the low quality of its juice. This is clearly shown in table VI E, where it will be seen that with the exception of P.O.J.2878 as second ratoons, its juice quality as measured by Pol. % Cane, is lower than all other commercial varieties regardless of cycle age.

FERTILIZERS IN 1949.

Table VII presents statistics relative to the value and quantity of fertilizers used in British Guiana for the three years 1947, 1948 and 1949. Data for this table has been kindly supplied by estate Managers. There has been a welcome increase in the quantity of sulphate of Ammonia imported into the colony and supplies of this important fertilizer can now be considered adequate. There has been a slight decrease in the amounts of all other fertilizers imported. The upward trend in the price of Suphate of Ammonia continues and there has been an increase of approximately $4.00 in the cost per ton relative to 1948.

TABLE VII.—Values and Quantities of Fertilizers Used on British Guiana Sugar Estates, 1947—1949.

Fertilizers.	Value, $			Per cent. of Total Value.			Per Ton, $			Quantity, Tons.			Per cent. of Total Quantity.		
	1947	1948	1949	1947	1948	1949	1947	1948	1949	1947	1948	1949	1947	1948	1949
Ammonium Sulphate	819,678.51	895,668.33	1,010,207.16	82.4	77.2	81.7	93.01	103.89	107.69	8,812.81	8,621.61	9,380.59	56.9	47.4	53.2
Calcium Cyanamide	82.50	37,327.80	20,568.78	...	3.2	1.7	110.00	114.98	130.30	.75	324.65	157.85	...	1.8	.9
Basic Slag	74,164.02	85,898.66	77,902.58	7.5	7.4	6.3	67.68	58.88	62.28	1,095.75	1,458.90	1,250.82	7.1	8.0	7.1
Superphosphate	1,789.67	397.52	554.60	.2	...	...	53.74	64.64	56.59	33.30	6.15	9.80	.3	...	.1
Limestone	78,729.42	110,591.31	107,426.41	7.9	9.6	8.7	16.02	15.97	17.04	4,913.79	6,922.86	6,304.07	31.7	38.1	35.7
Rock Phosphate	20,049.02	29,901.61	19,275.93	2.0	2.6	1.6	32.17	35.13	36.75	623.25	851.25	524.55	4.0	4.7	3.0
TOTAL	994,493.14	1,159,785.23	1,235,935.46	100.0	100.0	100.0	...	...	...	15,479.65	18,185.42	17,627.68	100.0	100.0	100.0

REPORT ON THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1949.

STAFF.

W. H. C. Knowles, A.I.C.T.A., Dip. Agr.	*Sugar Agronomist.*
C. Cameron	*Field Manager.*
C. A. Bannister	*Field Assistant, (to May)*
J. Talma	*Field Assistant, (to May)*
H. W. Payne	*Field Assistant, (to August)*
D. L. Corsbie	*Field Assistant, (from May)*
H. I. Gomes	*Field Assistant, (from May)*
G. A. Vieira	*Field Assistant. (from Sept.)*
H. B. Singh	*Sugar Analyst & Statistician.*
C. A. V. Smith	*Statistical Assistant.*

2. Messrs. Bannister and Talma resigned the posts of First and Second Field Assistant, respectively, on the 30th May to pursue studies in Agricultural Science at McGill University, Canada.

3. Mr. Payne resigned as Third Field Assistant to pursue studies in Agricultural Science at British Columbia University, Vancouver, Canada.

4. Messrs. Corsbie, Gomes and Vieira were appointed to the vacant posts of First, Second and Third Field Assistant, as from May 16th and September 15th, respectively.

5. Absences of the Staff from duty during the year were as follows:—

	Casual Leave.	*Sick Leave.*	*Vacation Leave.*
Mr. Knowles	—	16—29.vi.49	14.vii.—13.viii.49
Mr. Cameron	1—16.vi.49	—	—
Mr. Singh	—	18.x.—2.xi.49	—
Mr. Smith	—	—	20.vi.—2.viii.49
Mr. Corsbie	—	—	—
Mr. Gomes	—	—	—
Mr. Vieira	—	—	—

COMMITTEE.

6. The following members formed the British Guiana Sugar Experiment Stations' Committee for the year:—

The Director of Agriculture	*Chairman.*
The Deputy Director of Agriculture	*Chairman, Actg. (from July)*
Mr. T. R. Cowell	*Messrs. Sandbach, Parker & Co., Ltd.*
Mr. R. R. Follett-Smith	*Messrs. Booker Bros., McConnell & Co., Ltd.*
Mr. G. M. Eccles	*Messrs. S. Davson & Co., Ltd.*
Mr. H. F. Chapman	*Messrs. S. Davson & Co., Ltd. (from June)*
Mr. H. R. Barnwell	*Messrs. Sandbach, Parker & Co., Ltd.*
Mr. W. O'B. Rigden	*Messrs. Sandbach, Parker & Co., Ltd. (from June)*
Mr. H. A. Barclay	*Messrs. Booker Bros., McConnell & Co., Ltd.*
Mr. R. F. Milne	*Messrs. Booker Bros., McConnell & Co., Ltd.*
Mr. R. H. Payne	*Messrs. Booker Bros., McConnell & Co., Ltd. (from May)*
Capt. J. F. Irving, M.C.	*Department of Agriculture—Secretary.*

Meetings were held on the 13th of August and the 13th of December, 1949.

FINANCE.

7. The sum of $41,872.24 was voted from the funds of the Sugar Experiment Stations' Committee for the working of the Station during the year; the total spent was $43,174.65.

8. Receipts from Assessments during the year amounted to $33,294.50, those from sale of canes to $15,892.34 and miscellaneous receipts to $709.68.

9. Of the amount spent from the funds of the Committee $764.57 was expended on Research Equipment and $334.26 on the British West Indies Sugar Technologists' Conference in Antigua.

EQUIPMENT.

10. For reasons of economy there were no major repairs done during 1949 but the Crossley engine which powers the experimental mill was overhauled and a new concrete cooling tank cast. The wooden path leading from the Laboratory to the mill house was replaced by one of concrete, and a used boiler was repaired and installed outside the Laboratory to increase the water supply.

In addition the Office acquired a new Typewriter, Calculating machine and two second-hand tables while research equipment included an Overhead Pipe line Irrigator (ex Barbados), Johnson Pump (Dayson's) and a 'Cutex' Cane Fibrator (ex Australia).

CANE BREEDING AND INTRODUCTION.

TABLE I.—**Demerara Seedlings in Tests and Undergoing Multiplication, etc., December, 1949.**

Year.	Number of Seedlings.	
	In Test.	Under Multiplication, etc.
1934	1	—
1936	—	—
1937	—	—
1938	—	—
1939	—	—
1940	—	—
1941	6	1
1942	—	—
1943	21	1
1944	11	—
1945	103	77
1946	80	209
1947	Breeding ceased in 1946.	
Total	222	288

TABLE II.—**Barbados Seedlings in Tests and Undergoing Multiplication, etc., December, 1949.**

Year.	Number of Seedlings.	
	In Test.	Under Multiplication, etc.
1933	—	—
1934	1	—
1937	2	—
1938	—	—
1940	3	—
1941	3	—
1942	1	—
1943	11	2
1944	20	—
1945	—	15
1946	—	36
1947	—	37
Total	41	90

11. *The 1946 seedlings* have been subjected to their first selection and 209 have been extended on frontland clay at Sophia.

12. Cane varieties imported during the year through the Central Plant Quarantine Station, I.C.T.A., Trinidad, B.W.I., were as follows : B.4502, B.4504, B.4506, B.4530, B.4534, B.4553, B.4556, B.4572, B.4596, B.45137, B.45151, B.45152, B.45156, B.4604, B.4608, B.4668, B.4681, B.4688, B.4691, B.4692, B.4699, B.46102, B.46103, B.46116, B.46136, B.46144, B.46150, B.46151, B.46190, B.46218, B.46230, B.46232, B.46248, B.46281, B.46288, B.46290, B.46293, B.46295, B.46297, B.46308, B.46339, B.46340, B.46351, B.46369, B.46378, B.46384, B.46394, B.46399.

The following varieties were imported direct from Barbados in 1949—one variety of the B.45', two of the B46' and thirty-seven of the B.47' series.

EXPERIMENTS.

13. In Sugar Bulletin No. 18 the experiments reaped during the year have been fully reported and will not be discussed here. At the end of the year there were 67 variety, 11 manurial and 6 cultivation experiments in progress.

MISCELLANEOUS.

14. Table III gives statistics, for recent years, as to field experiments started and reaped, cane cuttings distributed, cane samples analysed, etc.

15. Work with hormone type weedicide preparations was commenced to combat wild Eddoe along with preemergence spraying of cane fields with Fernoxone to eliminate weeds. In co-operation with the Department of Agriculture an experiment to test several varieties of Jute and Jute substitutes was established and after reaping samples of the retted fibres were despatched to London.

TABLE III.—**Statistics of Seedlings, Cane Distribution, Field Experiments, Cane and Soil Samples, Cane Sold and Visits Paid to Estates, 1940—1949.**

Year.	Seedlings Basketed.	Cane Cuttings Distributed.		Field Experiments.		Cane Samples.		Soil Samples Taken.	Cane Sold to Pln. Ogle.		No. of Days Visiting Estates.
		No. of Cuttings.	No. of Bags.	Started	Harvested.	No. Taken and analysed.	Cane Crushed (Tons).		Deliveries (Tons).	Net Receipts. $.	
1940	19,557	430,950	3,315	41	56	559	14	42	1,114.40	2,657.55	216
1941	21,354	637,780	4,906	30	62	626	7	18	1,077.50	2,713.32	230
1942	6,007	881,660	6,782	28	74	909	21	9	1,476.70	3,718.98	212
1943	8,951	524,810	4,037	19	78	819	16	159	1,352.85	3,525.65	211
1944	12,903	602,420	4,634	11	72	434	14	31	1,590.09	5,053.26	139
1945	6,043	578,240	4,448	98*	118†	605	14	95	1,461.02	6,812.25	173
1946	3,896	447,230	3,671	55*	111†	505	15	51	1,750.20	8,776.95	177
1947	—	172,900	1,330	27*	64†	403	15	18	2,153.37	9,542.47	211
1948	—	347,230	2,671	37	54	476	12	290††	2,232.05	9,892.36	162
1949	—	310,180	2,386	28	62	953	22	14†††	2,535.19	15,892.34	154

1945 { * Includes 64 Maize Micro-plot Experiments.
{ † Includes 53 „ „ „

1946 { * Includes 30 „ „ „
{ † Includes 39 „ „ „

1947 { * Includes 5 „ „ „
{ † Includes 5 „ „ „

1948 †† Includes 201 Sent to the I.C.T.A.

1949 ††† Sent to Yale University.

16. A Field Day for Sugar Estate Staffs was held at the Sugar Experiment Station in September and was attended by the Deputy Director of Agriculture and twenty-one managers and overseers.

17. The Sugar Agronomist attended the British West Indies Conference of Sugar Technologists held in Antigua during September.

18. The Sugar Experiment Stations' Research Sub-Committee met every month in 1949 to discuss and plan research policy. In November Mr. P. E. Turner, Sugar Agronomist Development and Welfare in the West Indies, visited the Colony, and, at a special meeting of the Research Sub-Committee on December 21st, 1949, gave his views on Mechanical Tillage problems, etc., in British Guiana and the Caribbean.

19. One hundred and twenty-two persons, including those connected with the Sugar Industry of the Colony and abroad, visited the Station during the year. In addition twenty students from the Imperial College of Tropical Agriculture, Trinidad, visited the Station acompanied by Dr. H. J. Page, Principal, Messrs. J. W. H. Webb and C. W. Lynn of the College Staff and Messrs. C. H. B. Williams and G. C. Stevenson of the Department of Agriculture, British Guiana. They were conducted on a tour of the Station's lands, Office, Laboratory, etc. by the Sugar Agronomist and Feild Manager.

ACKNOWLEDGMENTS.

20. The cordial co-operation of the Staff of the Sugar Estates and of the Sugar Experiment Station is very gratefully acknowledged.

W. H. C. KNOWLES,
Sugar Agronomist.
April. 1950.